



RADIO**WORLD**

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The Future of *Storytelling*

NAB Show explores podcasting, the in-vehicle experience, digital platforms and the next generation of radio.

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Next-Gen PRSS System Is on the Way

Hybrid system to feature public internet connection

BY MICHAEL LECLAIR

With some anticipation, public radio engineers all over the United States have been waiting for the next-generation satellite distribution system. New equipment was last deployed by the Public Radio Satellite System in 2011. The new generation will add important features to improve reliability and flexibility of program distribution, including a backup path via the public internet and new ways to manage individual station schedules via the ContentDepot web portal.

I asked Michael Beach, vice president of NPR Distribution, for details about the new system and the timetable for its deployment.

CHRISTMAS IN SUMMER

The first steps are underway. "There are parts of the new system that have already been shipped and received," Beach told me via email (see Figs. 1-3 for views of the initial equipment installations).

The initial *development* "environment," consisting of uplink equipment and a set of test receivers, is in place in Washington. It will be followed by a *stage* environment that prepares for the delivery of the final *live* envi-

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FCC Hopes to Streamline NCE Selection Rules

It takes another look at comparative standards; the proposals also would affect low-power FM stations

BROADCASTLAW

BY SUSAN ASHWORTH

The power of community radio is driving the FCC to streamline certain rules affecting NCE and LPFM stations. That's the feeling of several industry observers, attorneys and even FCC commissioners who commented after a commission action in February.

The FCC launched a proceeding to consider changes in how it compares and considers competing applications for new noncommercial educational FM stations, NCE FM translators and LPFM stations. Major modifications for those groups would also be affected, as would NCE TV stations.

When the NPRM was announced, Chairman Ajit Pai said some of the current rules are "needlessly com-

HIGHLIGHTS OF THE PLAN

"Mutually exclusive (MX) applications for new NCE and LPFM stations are currently resolved by applying comparative procedures that include a point system for selecting among MX applications," the FCC stated. "This NPRM seeks to clarify, simplify and improve our selection and licensing procedures and thus expedite the initiation of new service to the public."

Among other things, it tentatively proposes to:

- Eliminate a requirement that NCE applicants amend their governing documents to pledge that localism/diversity be maintained in order to receive points as "established local applicants" and for "diversity of ownership;"
- Improve the NCE tie-breaker process and reduce the need for mandatory time-sharing;
- Clarify aspects of the "holding period" rule by which NCE permittees must maintain the characteristics for which they received comparative preferences and points;
- Reclassify as "minor" gradual changes in governing boards with respect to non-stock and membership LPFM and NCE applicants;
- Extend the LPFM construction period from 18 months to a full three years;
- Allow the assignment/transfer of LPFM construction permits after an 18-month holding period and eliminate the three-year holding period on assigning LPFM licenses.



Getty Images/Mark Wilson

plex and can trip up well-intentioned but inexperienced applicants seeking to bring new radio service to their communities."

A VOICE IN THE AIR

"I think that even in a day of expanding audio opportunity, there is still something special about a voice in the air," said Commissioner Jessica Rosenworcel after the FCC action in February. "There is still something powerful about broadcasting that sounds like the community where it comes from."

At present, mutually exclusive applications for new NCE and LPFM stations are resolved with a multifaceted point system. While these procedures have certainly led to the grant of several thousand new station construction permits over the years, the FCC said, some of the current rules are challenging and have caused problems for applicants.

While none of the changes is monumental or dramatically consequential, each will remediate one of the "gotchas" in the rules that can cause a denial of an application, said John Garziglia, a partner with Womble Bond Dickinson.

"The FCC's staff is to be commended for reviewing its rules that appear to cause compliance issues for NCE applicants," he said. "To address those compliance issues, the FCC is proposing rule changes that keep underlying policies in place but make compliance less complicated for new station applicants."

One of the more logical moves is the extension of LPFM construction permits to three years. "[That] is a no-brainer considering that there is now a routine one-additional 18-month extension for almost all LPFM permittees," Garziglia said. "The FCC is putting into a rule that which is now practice."

But he said holders of construction permits should be aware that, absent tolling, the proposed three-year time period for construction permits is likely to continue to be strictly enforced without further extensions.

MINI-WINDOW

Other industry organizations support commission concepts like the establishment of a mini-window. In cases where a timesharing proponent drops out for whatever reason, that same time slot would be available

(continued on page 6)

Virtualization Adds Flexibility to Radio

A new approach to simplify workflows and enable mobility

COMMENTARY

BY BENJAMIN LARDINOIT

The author is cofounder of On-Hertz.

In a world in which consumers have almost unlimited choice about the content they consume and where and when they consume it, how do you create loyalty? How do you make your content “sticky” so that those consumers keep coming back for more?

Offering tailored content for an audience is one way. Increasing interaction is another. Being relevant and topical is yet another. Creating a sense of community, of belonging, is a fourth.

In the face of these challenges, and in an environment where on-demand TV and social networks are well established, a new medium is arising. It's one that's more widely available than 4G. It excels at being “live” — but can also be on-demand. It works for every type of consumer. It enables those who use it to explore topics of interest in greater depth — or to discover new areas of interest. It connects people, engendering a sense of community, a sense of belonging — and it does that with no risk to anyone's personal data.

It sounds like everything you could ever want, right? But you've already got it, and as you've probably guessed, it's called radio. Radio has long played a cen-



On-Hertz founders Renaud Schoonbroodt and Benjamin Lardinoit

tral part in our lives — and it can continue to do so if it plays to its strengths of immediacy, of responsiveness, of relevance, of its ability to create conversation and to share opinions and experiences. If it delivers on those, it can create a depth of engagement and loyalty that other media formats can only dream of.

MOBILITY

To do so, though, mobility is key. Imagine, as a producer, being given the choice of covering a music festival from the studio or from the event itself. It is, as they say, a no-brainer. Or it would be if logistics and cost didn't get in the way. Setting up a radio studio in a muddy field and coordinating the logistics and resources necessary is arduous, challenging and costly.

Too often, those considerations deter radio broadcasters from “getting out there” and creating that sense of excitement, spontaneity, intimacy and, yes, fun that is only possible from being on location, close to the action.

Of course, radio has covered music festivals for many years. Big events like that are worth spending time, money and effort on — and research proves that they generate an audience response that makes it wholly worthwhile. But what if it was possible to cover much smaller events, and cover them more frequently without the time, money and effort?

Or what if you thought it might be fun to broadcast a show from a hot air balloon — in full sight of your audience? Or from the top of a mountain? Or at a local village fair? Or even from home? What if your imagination could run wild, unrestricted by considerations of logistics, upheaval and expense? From where might you broadcast then?

And here's another thing: You'd like to think that

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NEWS

technology has made our lives simpler. In radio, however, it really hasn't. It's allowed us to do more, but it hasn't made broadcasting a radio show any easier. It's as if the Apple revolution never happened — a shift that meant that anyone could use, and get value from, any device because it was so simple to master.

Which is a shame because, at its heart, radio couldn't be simpler. It's people talking into microphones, playing songs and interacting with each other. It is now time to bring radio production workflows to the same level we demand from all our other devices.

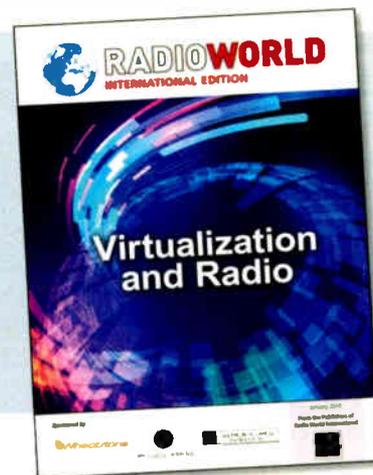
It is now time to bring radio production workflows to the same level we demand from all our other devices.

Why? Simply, because in radio as in all other forms of media, content is king — and every minute and cent we spend on something that isn't content is time and money wasted. A radio presenter's value doesn't lie in his or her ability to watch dials, twiddle knobs, move faders. It lies in being able to deliver content in a way that's entertaining and engaging.

SIMPLICITY

Then there's the issue of getting the most value from scarce and valuable resources. You've set up that outside

This article is from Radio World's ebook "Virtualization and Radio." We've now published more than 50 ebooks on a wide range of topics that are of interest to the broadcast technologist or manager including AoIP, next-gen codecs, cloud technology, digital radio, RDS, DRM, translators and more. All are free to read. Find recent issues by clicking the ebooks section under the Resource Center tab at radioworld.com.



broadcast from that music festival — so is it the best possible idea to chain your technical team to the remote studio when their work is, to all intents and purposes, done? Of course it's not.

All of the above is leading us to the concept of virtualized radio, which has at its heart the goals of simplifying workflows and reducing cost while at the same time enabling an unprecedented mobility that can allow radio to do what it has always done best — and must continue to do if it is to continue to thrive.

Unsurprisingly, the concept is capturing significant interest. Today, a remote broadcast means making a choice between undertaking a major logistical exercise on the one hand, or accepting a reduced level of functionality and capability on the other. Virtualized radio means that you can, in effect, have it all: minimal logistical effort with maximum quality of output.

But it's because of its impact on the bottom line that virtualized radio is really getting attention — because it can increase revenues while decreasing cost. Taking the show on the road gets it closer to its listeners. It makes content more rel-

evant to their interests. Those two characteristics mean boosted audience reach and engagement and make the show much more attractive to advertisers.

In a virtualized radio world, broadcasters can produce shows more easily because less effort is required, thus more shows become a reality. The threshold that makes a show viable becomes significantly lower.

In addition, virtualized radio is inherently much less expensive to own and operate than today's more cumbersome approach. That means more money to invest in content. Trucks don't have to roll or crews deploy, not to mention reduced replacement and maintenance cost, as well as no need for studio space.

It's no surprise, therefore, that virtualized radio is something that many broadcasters are evaluating actively. The new approach of virtualized radio offers vast potential to an old but reliable medium.

Based in Belgium, On-Hertz develops web-based radio studio solutions that provide workflow on a local device or in the cloud.

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World Radio History

Digital Radio Summit Rings a Wake-Up Call

U.S. broadcast officials describe a dramatically evolving competitive landscape during EBU event

FUTURERADIO

BY DAVIDE MORO

Sure, digital radio continues to advance in the U.S. and worldwide; and the number of digital radios being purchased by consumers, especially in cars, is accelerating.

But David Layer, NAB's vice president for advanced engineering, cuts to the chase: No broadcaster can afford to be complacent.

"There will come a time, and it will be sooner than we expect, when competition for listeners will be from more than just an audio streaming service or a podcast," Layer said at the European Broadcasting Union's Digital Radio Summit in Geneva in February.

TRANSITION STRATEGY

Layer said U.S. radio broadcasters are starting to think about a transition from the current hybrid analog/digital technology to an all-digital implementation.

All-digital would bring a number of advantages to the FM bands too; but at this point, such consideration is more a long-term consideration on FM.

On the other hand, attendees were told, AM band services in the United States are facing immediate challenges both in competing with other services and in earning revenue. Layer described the use of FM translators by AM licensees. That relatively recent change is part of the FCC's AM revitalization initiatives but also provides a potential transition opportunity, allowing an AM licensee to try all-digital broadcasting while continuing to serve its community on the FM band using analog radio.

Layer reported to the group that in July 2018, WWFD 820 kHz received experimental authority to become a full-time all-digital AM station, as RW has reported.

WWFD "The Gamut" is using an FM translator to reach listeners with analog-only radios. But any of the 60

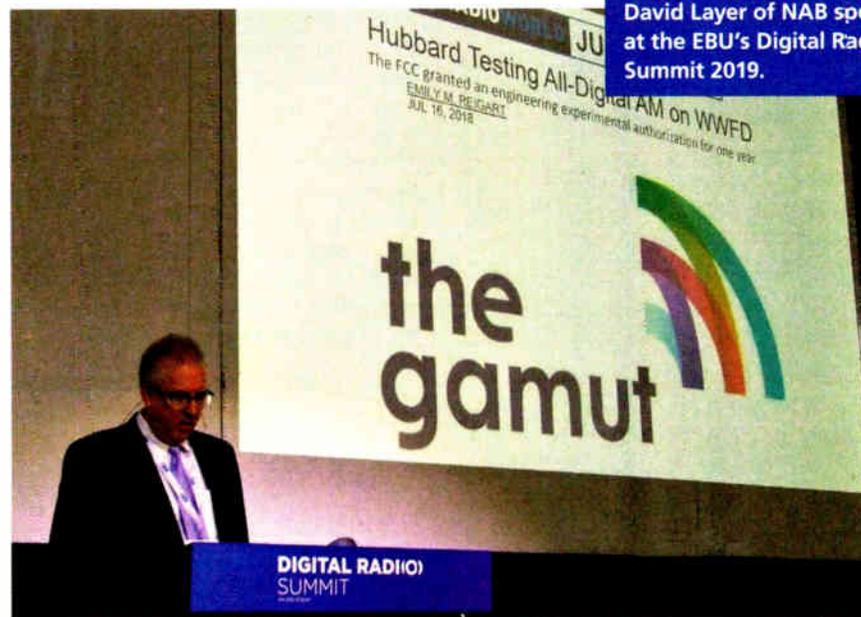
million HD Radio receivers already sold in the U.S. could receive WWFD's all-digital AM emissions. Layer showed an impressive video where the WWFD all-digital AM feed is playing through the factory-fit receiver of an Audi Q5.

SO GOOD IN A CAR

Thus, he said, WWFD looks and sounds like the most appealing music streaming service, blending vibrant, crystal-clear sound with crisp cover art and images on the dashboard. (WWFD broadcasts the metadata while the album art image is added in-vehicle by the Audi receiver through a Gracenote database.)

"Thanks to Audi for all the work that they've done in making radio so good in a car," Layer said. "NAB is proactively engaging with automakers and others to imagine further possibilities that take advantage of both over-the-air radio technology and mobile broadband."

One of those is radio customization based on user profiles; Layer imagines a time when consumers get into a vehi-



David Layer of NAB spoke at the EBU's Digital Radio Summit 2019.

cle and have their preferences, perhaps stored on their smartphone, available effortlessly on the dash and ready to use, no matter where they are.

In his opinion, radio broadcasters need to work to enable this kind of future vision. "And not just be on the sidelines while the world changes around them."

"Let's consider the Audi Holoride, a backseat virtual reality experience that ties the entertainment being consumed by passengers to the motion of the vehicle, resulting in a thrilling amusement-park-like experience. This kind of development is a wakeup call for radio broadcasters."

(continued on page 10)

NCE SELECTION

(continued from page 3)

to a new entrant through a subsequent mini-window — rather than taking the time to reapportion it to any surviving stations, said advocacy group REC Networks.

However, because of the current 10-hour minimum rule, the dropped-out group may have only had a small amount of time — and that time may be in the middle of the night, such as the case of one time-share in Miami, said REC Networks' Michelle Bradley. That may not be viable to a new applicant.

Bradley presented a proposal to FCC staff in February that would support the mini-window concept as well as address concerns about point-stacking that sometimes give some groups an unfair advantage.

Despite the mostly positive comments, there are a few proposals greeted less favorably by industry watchers — such as the one to lift reimbursement limitations for applicants that remain tied after all selection criteria are applied. The history of FCC application procedures, however, is that applicants mold themselves to whatever specific selection criteria will most prevail, Garziglia said.

"If the end result of the application process is a potential significant payoff or largess as a result of the removal of reimbursement limitations in a settlement, that will only encourage additional applicants formed specifically for the end result of receiving money," he said.

Bradley expressed concern about the FCC's policy of permitting applicants to pre-plan a time-share group and then use the rule that allows time-share proponents to only propose 10 hours of operation per week to be able to "stack" points in favor of the pre-planned group.

"We saw that take place in Philadelphia, Los Angeles and possibly Boston," she said. "Point-stacking is where a single

group asks for a large amount of time and then additional organizations are added on with 10 or 12 hours of time each in order to inflate the group's score and their likelihood of being awarded the channel."

All in all, however, Bradley said the proposed changes will help inexperienced applicants and increase the integrity of the application process. "Rule changes such as the certification and hopefully a documentation requirement for site assurance could have prevented a considerable number of questionable speculative filings in the 2013 LPFM window," she said.

REASONABLE ASSURANCE

Garziglia also pointed to the need for applicants to be aware of some of the lesser-known requirements for NCE and LPFM applicants, including the requirement for a reasonable assurance of transmitter site availability.

"The FCC's NCE and LPFM application instructions and forms currently make no mention of this requirement," he said. "A significant number of NCE and LPFM applicants have had their applications denied due to a failure to have a reasonable assurance of site availability."

The FCC is proposing to change its application instructions to state that requirement and alter its application form to require a certification of a reasonable assurance of site availability.

"With these changes, NCE and LPFM applicants will hopefully not be blindsided in the future by discovering far too late this FCC site-availability requirement," he said.

The FCC wants to know what industry stakeholders think. Commenters are encouraged to use the commission's ECFS database at www.fcc.gov/ecfs/filings, referencing Media Bureau Docket Number 19-3 or searching for the tongue-twisting moniker "Reexamination of the Comparative Standards and Procedures for Licensing Noncommercial Educational Broadcast and Low Power FM Stations."

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World Radio History

Boyer Nurtures Personal Relationships

Adapting to new media is just part of 21st century farm reporting

FARMRADIO

BY JAMES CARELESS

Lorrie Boyer, farm director at Farm Radio 1010 KSIR in Fort Morgan, Colo., was elected 2019 president of the National Association of Farm Broadcasting. Founded in 1944, NAFB's members serve farmers nationwide with agricultural news, weather and market information.

"As a farm broadcaster, my goal is to serve my listeners with the most accurate, usable and up-to-date information that I can," said Boyer. "As 2019 NAFB president, I hope to provide the same level of service to the association, its members and the farmers we broadcast to."

RENEWED INTEREST

Make no mistake: Farming remains big business in this country. According to the Department of Agriculture, American farms contributed \$136.7 billion to the U.S. economy in 2015 alone. That works out to about 1 percent of U.S. gross domestic product.

And if you are tempted to think of farm broadcasting as a relic, here are some important bits of information. Boyer says 10 years ago, NAFB had 146 broadcasters, with total membership of 484. Today membership has grown to 176 broadcasters and total membership to 808 — a jump of about 20 percent in farm broadcasters and a doubling of membership in 10 years.

"The increase in the number of farm broadcasters is reflective of the renewed interest in agriculture, people wanting to know where their food comes from and the success of the farm economy within the last 10 years," she said.

"The relationship farm broadcasters have with their audience today is as strong as ever; in addition to listeners feeling like their farm broadcaster is part of their 'family,' the advent of social media has only added to the broadcaster's relationship with their listeners."

She said research shows farm broadcaster listeners rank their farm broadcaster high for credibility, timeliness and accuracy. "Even as information is readily available from the internet or even smartphones, the relationship the farm broadcaster has with their audience is unrivaled."

Further, she said, interest in ag communication and journalism is high among college students (NAFB's student membership is up dramatically); the number of network affiliates continues to grow; and agriculture advertisers,



Lorrie Boyer: "We are servants working for the public good."

she said, continue to recognize the value of farm broadcasting delivering their message to a premium market.

LONG COMMITMENT

Lorrie Boyer's commitment to farm radio goes back over 20 years, when she had just graduated from Colorado State University.

Before graduation Boyer was an intern at Colorado's Ag Journal. After leaving the university in 1996, her knowledge of farming helped Boyer land a job as agricultural news director at KLMR Radio (93.5 FM) in Lamar, Colo.

Hosting a morning and afternoon show at KLMR taught her how to be an on-air personality. Her combined skills led competing station KVAJ to hire Boyer in 2000 to set up a new agriculture department with her in charge, while keeping her on air as well.

Since then, Boyer has become most

known for her farm broadcast work at KSIR — initially between 2004 and 2011, then from 2014 to the present as the station's farm director and KSIR morning show host.

Billing itself as "Colorado's Only Agriculture Station," Farm Radio 1010 KSIR is serious about farm content. It broadcasts agricultural news and reports 5 to 10 a.m. weekdays, reports on farm markets at the bottom of each hour until the markets shut down, provides the closing grain bids twice each weekday afternoon and interviews ag newsmakers on the weekday lunchtime show.

Boyer lives and breathes farm broadcasting, both at KSIR and through her involvement with the NAFB, where she previously held the offices of vice president and regional VP.

"I get up really early every day to serve my listeners," she said. "On bad weather days, I drive into work to get to

the studio, so that I can tell listeners to not be on the roads any more than they have to."

As a long-time farm broadcaster, Boyer has built strong personal relationships with local farmers. "There's profound mutual trust between me, KSIR and our listeners, which exists outside of work as well as on the job," she said. "I don't think satellite radio or any other new technology will take that bond away."

TECH CHANGE

When Boyer started working in farm radio, "we were using 8-track carts and reel-to-reel machines," she said. Meanwhile, listeners, typically working outside or in farm buildings, got their real-time information mostly via radio or perhaps TV.

Now, although Boyer still does radio reports in the station and on location, "I'm also broadcasting video live via Facebook," she said. Boyer and KSIR are getting their content out via streaming media and podcasts as well, in a bid to reach Millennial farmers who don't tune into radio as much as their parents do.

KSIR can be heard live at www.ksir.com, with a content-rich farm news feed that puts many mainstream local broadcasters' news efforts to shame.

Adapting to new media is just part of 21st century farm reporting, Boyer said. "After all, we're broadcasting to tech-smart farmers who are using drones to monitor their crops."

NAFB GOALS

Boyer had considered seeking the role of NAFB president for 15 years now. Driving her dream is "a desire to give back to the association that has done so much for me and American farm broadcasting," she said.

Now that she has the job, Boyer wants the NAFB to establish a mentorship program to train the next generation of farm broadcasters. She wants to teach the content production skills to do the job right, and the technical know-how to make the most out of the many communications options open to them, from radio to smartphones.

"I also want to develop succession training within the NAFB, to prepare our younger members to move up in the association and take charge one day," said Boyer.

When her term ends in December, Boyer will stay involved as past president and a tireless devotee to the NAFB and the cause of farm broadcasting in general.

"In either case, it's all about service," she said. "Whether doing our best to run the NAFB well, or to broadcast the very latest news, weather and market news to farmers, we are servants working for the public good."

Cover all Bases with ViA



Bill Eisenhamer, Chief Engineer (Left) with JR Rogers, Technical Director

The Tieline ViA has been the backbone of the San Diego Padres road play-by-play live broadcasts.

“The ViA comes with an SD card slot for recording, so no more worries trying to keep someone at the station focused on recording. The crew on the road takes care of that and records interviews for playback during their live show. Being self-contained makes the device more flexible for the real world.”

The ViA is a winner for The Fan, and Entercom San Diego.

Bill Eisenhamer
Chief Engineer, Entercom San Diego



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DIGITAL RADIO

(continued from page 6)

ENABLING OPPORTUNITIES

Brian Savoie, senior director for technology education and outreach at the NAB, described a voice-controlled radio prototype developed through a joint project of NAB and the EBU. Savoie highlighted the role that voice-controlled devices can play in broadcasters' development strategies.

He said the adoption rate for smart speakers in the United States is likely to be faster than that of any consumer device in history, including smartphones.

In Savoie's opinion, the installed base already has provided opportunities for broadcasters to meet their audiences in new spa-



The all-digital AM emission by WWFD is shown through the standard factory-fit receiver of an Audi Q5.



Brian Savoie of NAB stressed the importance for broadcasters of including voice-controlled devices in their strategic thinking.

ces and new ways, bringing a noticeable increase of in-home listening to radio streams.

"In the U.S., about 18 percent of smart speaker owners use their device to engage with local businesses," said Savoie. "Broadcasters on an advertising-supported model should highly value this information."

According to a Gartner forecast, by 2020, 70 percent of U.S. households will own a smart speaker, though analysts expect the adoption curve eventually to flatten out.

Savoie said devices like smart smoke detectors are embedding high-end spea-

no other action required.

The system could then download that profile information and personalize the experience, applying favorite, customized presets for environmental controls and, hopefully, radio presets, playlists and podcasts.

Since connected cars have different levels of internet access, Amazon is working on basic offline Alexa services that users should be able to access even when no wireless service is available.

"What impact could this have for radio?" Savoie said. "We all would

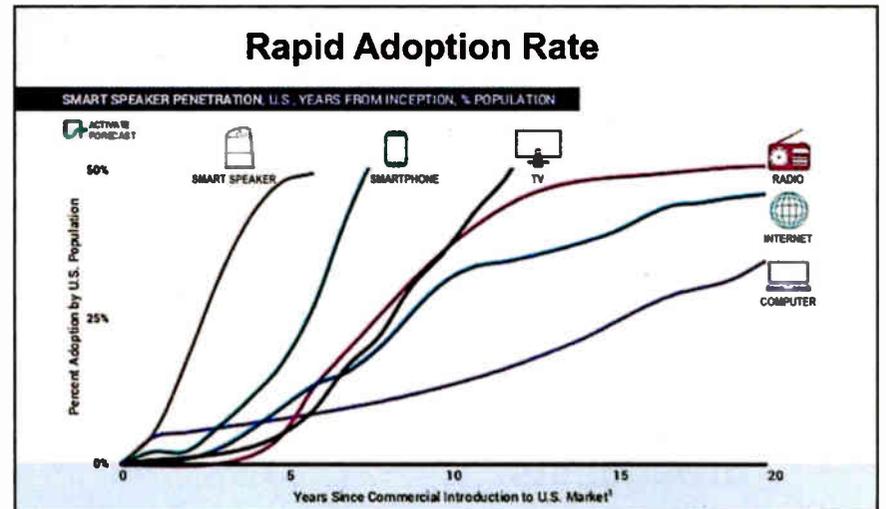
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Analysts expect the adoption rate of smart speakers will be faster than that of any consumer device in history.

kers and audio technology, allowing different classes of voice-enabled devices to proliferate in the home.

"This way, you won't necessarily need a smart speaker," he concluded. "So when focusing on the opportunities that these types of technologies allow, simply looking at the smart speaker may be too narrow-focused."

A.I. IS IN THE CAR

Savoie also said Amazon is looking to extend Alexa into cars as part of their infotainment systems. Using various forms of A.I. — for example, face recognition — they could authenticate a user as soon as he or she enters the car, with

like users to still be able to tune to a radio station even when they are out of internet connection. How to do that is something we are talking about. Broadcasters need to examine the services Amazon is developing, ensuring that radio's place in this environment is properly understood."

Write to RW

Email radioworld@futurenet.com with "Letter to the Editor" in the subject field. Please include issue date and story headline.

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WORKBENCH

by John Bisset

Email Workbench tips to johnpbisset@gmail.com

I've had the pleasure of speaking to a number of SBE chapters and state associations recently. AES67 compliance is a popular subject, especially in that there are no "AES67 police" to ensure compliance with the AES AoIP standard. Buyer beware!

Another popular discussion is the number of engineers who lose their jobs for doing them "too well." As management is pressed to reduce expenses, every department is under scrutiny. If you're not visible to your management, but the station stays on the air reliably, you may be leaving the false impression that you are doing nothing and aren't needed. Could the station be just as well served by a contract engineer at a fraction of your cost?

Sorry, but these are real considerations that I hear from GMs and owners.

So how do you combat this thinking? By keeping your GM, PD and OM informed of what you and your department are doing. If you get called out overnight or on a weekend, leave a voicemail or email explaining what caused you to be called into the station and how you corrected the problem.

And if it was an overnight call,

explain why you won't be in the station until noon. It takes just a few minutes to inform your coworkers. Most will appreciate knowing your level of service at such an hour. It helps explain why you aren't showing up at 8:30 the next morning.

Also prepare a brief engineering activity report. This doesn't have to be

desk. At the end of the week, I'd remove all the slips of paper; within five minutes, my bullet-point report was done.

Because so much of engineering is "off site," you must update your management team on your activities. In addition to keeping everyone apprised

If you're not visible to your management, but the station stays on the air reliably, you may be leaving the false impression that you are doing nothing and aren't needed.

anything fancy, just several bullet points to highlight the week's activities — especially major problems you solved. Send this to all the management team of which you belong — GM, SM, PD and OM.

If your shop is as busy as mine was when I was a practicing engineer, you'll never remember all the things you work on — even in a week's time. For every major event, I'd scribble a note on a piece of paper and slip it in a file folder in my

of your activities, if anyone gets the idea that your position can be eliminated, who will perform all these tasks?

This topic came up in a discussion among engineers at the Michigan Association of Broadcasters state convention. Engineer David Benson told the group about an app called Time Recording Pro by DynamicG. It's available for both Apple



Fig. 1: A screenshot of the Time Recording Pro app from DynamicG

and Android platforms for just \$3.49. It is a time management app that permits you to keep track of what you do and when. The data can be exported easily into an email to your comanagers.

This app is also ideal if you do contract engineering — all those little trips or services that get forgotten in a month's billing time are now captured (and billed). You're sure to recoup the \$3.49 investment quickly.

For the contract engineer, you can summarize your entries by client, and export the information into an email or an invoice. David uses the app exclusively, and I hope you will consider it too. It requires a little change of behavior — logging every activity — but the results are worth it and may just save your job!

For the station engineer, your most important activities are chronicled, and for the contract engineer, you'll be amazed at how your billing increases. Since the contract engineer has only his or her time to bill, catching all those "little" jobs that get forgotten is important to your bottom line.

(continued on page 16)

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Think Power Core looks awesome outside? That's nothing compared to the sheer processing might inside, with a 1920*1920 routing matrix, 96 DSP channels and 80 summing buses. All your friends will be so envious.

Information please: high-resolution color display with rotary encoder provides easy front-panel access to network information and settings.

Power Core is 100% standards-compliant - because proprietary AoIP is so 2003. Up to 256 channels of true AES67 and RAVENNA streaming, on two front-panel Ethernet ports. Even complies with the ST2110-30 standard. Because you can't be too future-proof.

Power Core supplies 64 channels of GPIO via standard RAVENNA and open-source Ember+ protocols. Need physical connections? Use the front-panel interface. Highly logical.

The Lawo logo. Your assurance of meticulous engineering and premium components, uncompromisingly crafted to the highest German standards.



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If four front-panel MADI ports aren't enough, you can add more. Dual-port MADI expansion cards give you two SFP ports with 64 channels each.

Power Core is already the highest-capacity AoIP node + console engine in the world. 8 rear-channel expansion slots make it capable of even more.

Dual-redundant power, of course. Our hardened internal auto-switching power supply is backed up with an inlet for external power too.

Some say bigger is better. Respectfully, we disagree. Small is superior. As proof, we present Power Core: the modern, super-compact AoIP audio interface that packs hundreds of stereo channels into just 1RU. Handles AES67, MADI, analog, AES3 – even Dante®. You'd need 24 rack units of old-style nodes to equal all the I/O available in just one Power Core.

Impressive, yes? But audio I/O isn't the end of Power Core's capabilities. There's DSP; a lot of it — 96 channels of EQ, dynamics and mixing. AutoMix, too. Plus routing: 1,920 crosspoints, enough to switch an entire multi-station broadcast facility.

Power Core is flexible, too. Pair it with our award-winning Ruby radio console and it's the most powerful mixing engine ever. Put it in your rack room and presto! it's a high-density audio interface with built-in routing. Remote-control it with our VisTool GUI Builder software, and it's the heart of your TOC.

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WORKBENCH

(continued from page 12)

We've had a great discussion over several columns about rack shelves and their supports. Fig. 2 is another take on the rack shelf. When mounted "backwards" in a turret, it holds a telephone hybrid controller. This makes the controller operation easy for the operator and keeps it off the console desktop surface.

Jeremy Preece is the chief engineer for K-Love/Air1, based in California.



Fig 2: Reverse a rack shelf in a turret to create a shelf for a telephone controller.



Fig. 3: Tripp-Lite has added a network connection to its power strips for monitoring and control.

Jeremy shared an AC power strip he is using that is manufactured by Tripp-Lite.

What makes this power strip unique is the RJ45 connector (and cable) shown in Fig. 3. The entire strip includes a network interface that enables remote monitoring and control. This is ideal for remote sites that may need to be monitored or require occasional rebooting.

Contribute to Workbench. You'll help fellow engineers and qualify for SBE recertification credit. Send Workbench tips and high-resolution photos to johnpbisset@gmail.com.

Author John Bisset has spent 49 years in the broadcasting industry and is still learning. He handles western U.S. radio sales for the Telos Alliance. He is SBE certified and is a past recipient of the SBE's Educator of the Year Award.

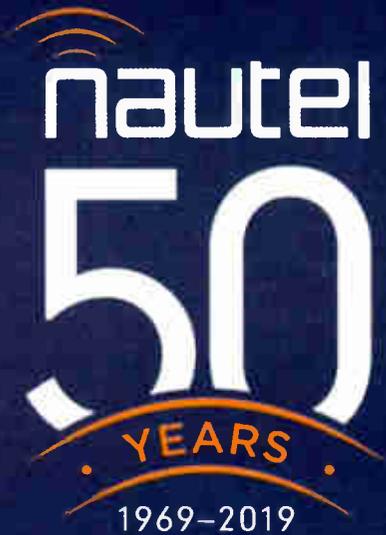
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PROMO POWER

Mark Lapidus

asked 1,000 Americans aged 22 to 37 and uncovered that 49 percent spend more on dining out than they put toward retirement. They found that 27 percent actually spend more on coffee alone than they do on savings plans.

Maybe it's time to reconsider your diet plan! What percentage of your broadcast week is spent discussing food?

What's old is new again: I once worked with one of those "real gentlemen" in radio — look the term up in the dictionary and you'd see the face of Eddie Gallaher. Eddie started so long ago that part of his job as an announcer was to sing live! Man, what a voice Eddie had.

He was also blessed with a sensitive palate and had the ability to convey in great detail why a restaurant meal was so delicious. Eddie made listener's mouths water for 53 years on the air.

Is there someone at your station or, maybe even better, a local foodie "influencer" who could do the same? I see advantages to either type of talent. A key personality at your station will already have cred with her audience. However, the culinary influencer will likely know much more about the local dining scene and, on top of that, she may well introduce a new audience to your station.

This short-form foodie segment — which airs primarily in morning drive, perhaps to repeat throughout the day — could also be a longer, weekly podcast wrap-up that goes into more detail concerning the reviews and discussion the host has done the previous week.

CULINARY CONTEST

The next step is conveying recipes on-air, on the web and on your social media channels. This is where you get listeners involved. The possibilities are almost endless. Here's one idea to get you started.

The prize: Dinner for two at a hot local spot or, if you've got the dough, a meal in a cool city that includes air and hotel fare. Contestants submit their original recipes (or those they've tweaked and cited) along with a bit of commentary as to why their recipe is so appealing, which you then push out to the public.

Tap as your finalists the top three or five who garner the most thumbs-ups.

(continued on page 20)

If your station hasn't capitalized on the foodie craze, give these recipes for success a try

It's nearly impossible to eat at a restaurant without witnessing a delighted diner taking a picture of the plate in front of them. Could you have imag-

ined this happening prior to Instagram, Facebook and digital photography? As many trend trackers have observed, Millennials are obsessed with

food. Thanks to social media, "food culture" has caught fire faster than a flambéed pudding. LendEDU, a digital marketplace for private student loans,

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World Radio History

Seven Myths Broadcasters Believe About Podcasting

What's keeping radio from monetizing on-demand audio?

21ST CENTURY PD

by Dave Beasing

The growth of podcasting is undeniable. How much radio should shift its focus toward local podcasts is certainly debatable and should vary by situation. Yet, as I visit radio stations around the country, many of the same misconceptions surface often.

1. Podcasting will cannibalize your over-the-air audience.

We found ourselves debating this issue when online streaming arrived. We now realize that few people have probably discovered streaming and abandoned their radios because AM and FM programming became available there. In fact, there's no evidence that repurposing some of the content of your morning show as a podcast, for example, causes people to listen to you less via the radio.

In an age when our listeners are consuming media constantly, anywhere and everywhere, "We can't worry about 'giving it away,'" says consultant Tracy Johnson. "Raise the profile and importance of your brands by exposing your content wherever you can."

That's why national TV personalities follow this strategy, posting content anywhere and everywhere. They are competing for their audience's time, attention and share of mind — not just at the time their program airs, but 24/7. If Jimmy Fallon becomes less relevant to a

potential viewer because James Corden is getting all the attention on Facebook, there's less likelihood of those who happen to be watching TV late tonight choosing Fallon.

In fact, "there is a generational expectation that content will be available on any device at any time," says Steve Goldstein of Amplifi Media. The ques-

with simply podcasting entire episodes of a multi-hour radio show. "That's not a service. It's an ordeal. Curate the best moments and make them available in bite-sized chunks the way 'Saturday Night Live' curates their best segments and makes them available. Or create unique content that wins new fans in a new space."



Amplifi Media President Steve Goldstein addresses Canadian Music Week attendees.

tion we need to ask, says Steve, is "What can I do to attract listeners on all platforms?"

As NPR VP/News Sarah Gilbert pointed out in this column recently, its podcasting audience and on-air audience are both at all-time highs (<https://tinyurl.com/podcastcompetitor>).

That being said, Johnson takes issue

brewery scene. You could create a consortium of micro-brews who each pitch in to generate further growth to the scene. The package could start with a brew festival that the station promotes, where their top brews are sampled; continue with a certain number of daily mentions about beer specials at each location with one live remote at each place; plus a section on the station website devoted to local beer and daily social media posts.

This same model could be applied to wine, seafood, pasta, healthy eating options, the list goes on.

Everyone has to eat. Not everyone has to listen to radio. Give people a compelling reason to sample your station and increase the odds of repeat customers.

Mark Lapidus is a longtime contributor to Radio World. Email him with comments or your own promo successes at marklapidus1@gmail.com.

2. Everybody should have a podcast.

"Everyone *could* have a podcast, but only if they have a great idea, concept and vision," says Johnson.

Goldstein adds, "Remember when websites were new and we pushed every personality to have a blog? Turns out a lot of DJs are bad writers without much to say. That didn't enhance their image a bit."

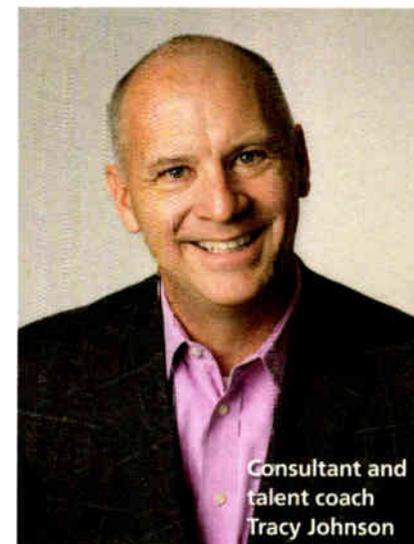
3. Podcasting is free.

Hardly. The time and effort a staff puts into podcasting are an investment. Would there be a greater return on that investment if it's put into a radio station's on-air product? Goldstein also reminds us that time is the investment that consumers make to listen, and we don't want them to regret their investment either.

4. You can't do a podcast about music.

Although music royalty issues make it darned near impossible to play even brief snippets of music — except from licensed stock music libraries — some of the most successful podcasts tell the stories behind the music.

As podcaster Mark Ramsey told me, "If I were writing a book about music, I wouldn't play the music in the book either."



Consultant and talent coach Tracy Johnson

5. "Hey, morning show! This will be easy. Just do an extra 15 minutes after your air shift."

That could be a good idea for a podcast, but not if it's treated as an afterthought. "Podcasting requires a commitment," Johnson warns.

6. People won't listen to a 15-minute commercial.

Goldstein and I co-produce a podcast for Trader Joe's that — we hope — isn't perceived as a commercial. That's the key. That Trader Joe's sells bananas for 19 cents each is revealed, but only in the context of a real-life, amusing story about how that price was set. Many clients may request a branded podcast that tells stories about their brand, but few are interesting and transparent enough to pull it off.

7. This too shall pass.

Tired of your TV's DVR? Want to go back to only watching live TV? Didn't think so. Digital technology has spoiled us. We can start, pause, rewind, fast-forward, stop. Maybe you've found yourself wanting to forward through an uncomfortable conversation like Adam Sandler does in the movie "Click." On-demand media has rewired our brains and shortened our attention spans, and podcasting is here to stay.

Hesitation about podcasting isn't surprising, and the format isn't for everyone. Neither is branding with public appearances, endorsements, video, social media or merchandise. Ultimately, if radio's leadership wants content creators to generate more revenue from more sources, not just from ratings, they will have to rethink how they're evaluating and compensating the talent.

Dave Beasing writes the column 21st Century PD. He can be reached at DaveBeasing@SoundThatBrands.com or @DaveBeasing on Twitter.

FOOD

(continued from page 18)

then invite them to bring in their dish for the morning show and your foodie star (if you have one) to sample live. From there, you choose the winner to announce the next day.

Maybe you can convince a local restaurant to actually put the dish on their menu to serve at a special price for that week.

SALES SPECIAL(TY) OF THE WEEK

If I haven't enticed you to start considering a culinary content perspective, there is an entire sales angle that can generate bucks to the bottom line. Once a month, you could create a week devoted to a food or beverage specialty.

As an example, consider "Beer Week." Many cities have a lively



Before



After

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access your MusicMaster intelligence when selecting songs without violating your programming rules; and, see instant log reconciliation, to name just a few. Coupled with the ability to push and pull data to station websites, mobile apps, social media, music research systems and other external data sources, the MusicMaster Nexus API is the way to connect your platforms together. Check out a demo at NAB Booth #N5627 or learn more by visiting www.musicmaster.com/nexus.



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World Radio History

Radio Seeks to Strengthen Podcast Connection



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Where: Las Vegas Convention Center

When: April 6-11

How: www.nabshow.com

How Much: A variety of registration options are offered, including a Conference Flex Pass for \$855 and a free exhibits pass with exhibitor code.

As consumption spikes, broadcast industry weighs challenges and opportunities

BY SUSAN ASHWORTH

Talk about being hidden in plain sight. It's an industry with a potential valuation that some put at a billion dollars, with a spike in growth predicted at 110 percent in 2020, and a growing library numbering nearly 800,000 titles.

And yet many broadcasters have not yet begun to embrace the medium of podcasting — perhaps waylaid by concerns over content creation, monetization or the way in which podcasting may disrupt today's radio ecosystem.

Podcasting may be poised for even more of an upswing and will make its presence known at April's NAB Show.

"The podcasting genre is growing, and there is great content being created," said Chris Brown, executive vice president of business operations for NAB.

"It's another important form of storytelling that needs to be part of our broad-based show. And momentum is strong for podcasting, so much so that we have already seen examples of podcasting personalities and content even migrating to television."

EMBRACE DELIVERY

Some broadcasters may view podcasting a bit warily. Steven Goldstein, CEO of Amplifi Media, will speak at the "The Exploding Business of Podcasting" session. He said many radio broadcasters seem stymied by fear that podcasts might disrupt the radio ecosystem.

"But today there is an expectation that content be

available on-demand," he said. "Broadcasters need to get beyond fear and embrace the delivery of content on other platforms. It's early days on the money side, but not so different than the early days of the Internet or cable. In two years, it's probably close to a billion-dollar business."

When it comes to finding an audience, he said, radio has a megaphone, "a built-in toolset to promote podcasts."

I think podcasting is a long-term play for everybody involved, which doesn't always work with our short-term revenue goals.

— Seth Resler

At the 2019 NAB Show, the convention will address podcasting through live shows, a new Podcasting Pavilion and a series of sessions as a way to showcase the popularity and respect that this medium has garnered.

Jennifer Lane, audio industry expert at the Interactive Advertising Bureau, said that podcasting has grown into a popular form of digital audio in part because it attracts listeners due to its diverse and high-quality content — and the fact that you can listen to it anywhere.

Given these fundamentals, experts say, broadcasters should consider key differences between broadcasting and podcasting. Though they are similar and use some of the same skills, they are different mediums, said Seth Resler with Jacobs Media.

"What works in one may not work in the other," said Resler, who will speak at the session "Radio Engage: Branded Podcasts — an Alternative Revenue Stream for Radio Stations" at the show.

How are they different?

"From an air talent's point of view, this means that the ability to do a great job front-selling an Ariana Grande song doesn't mean that you're ready to host 'Serial,'" he said. "From a salesperson's perspective, it means that selling 60-second produced spots based on AQH and TSL is not the same thing as selling dynamically inserted live reads based on download numbers.

"There's a learning curve," Resler said, "and radio broadcasters who are serious about the medium should give themselves the room to figure it out."

RESOURCE ISSUE

If there's one thing holding broadcasters back, it's a lack of time and resources, Resler said.

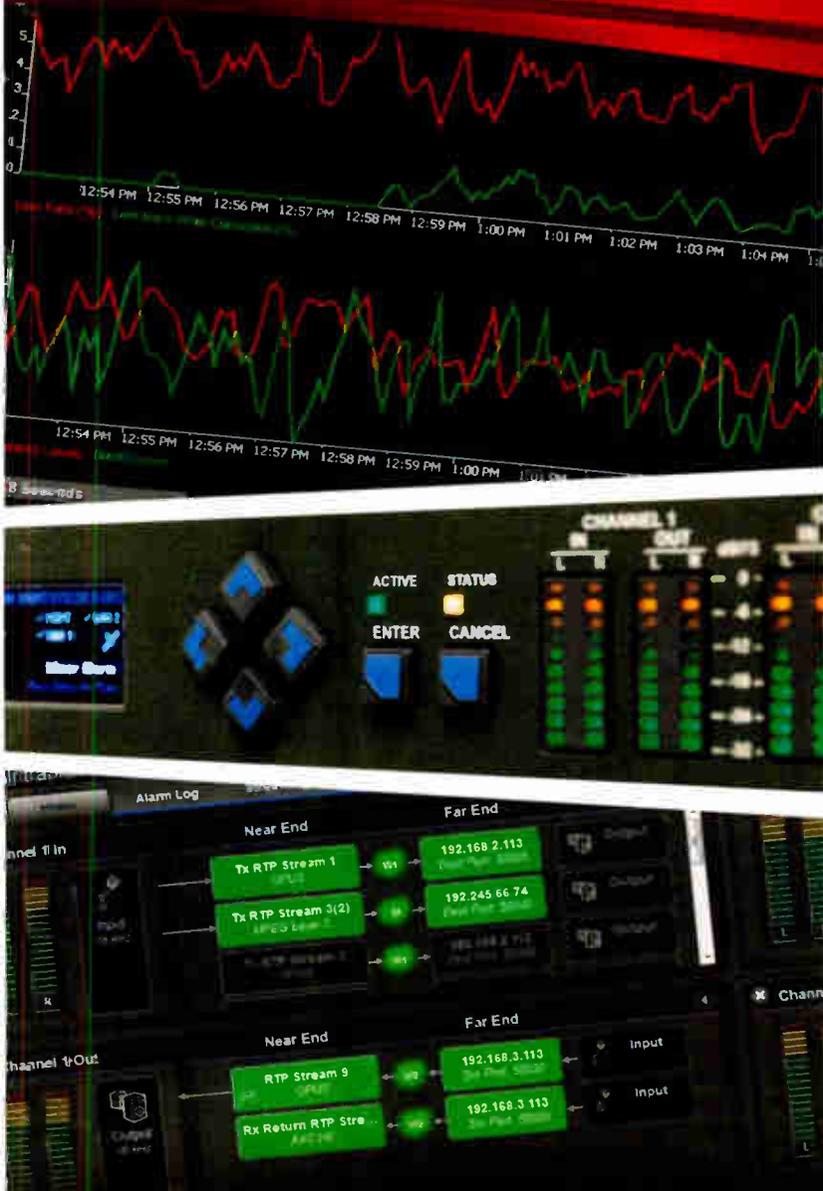
"This, of course, is a recurring theme in the radio world. As an industry, we tend to be unwilling to allocate resources to anything that doesn't provide an immediate payoff. I think podcasting is a long-term play for everybody involved, which doesn't always work with our short-term revenue goals."

So what are effective podcasters doing today? The successful ones are appealing to underserved niches, whether it be crime, comedy, daily news or fantasy sports, said Goldstein.

He said time-shifted content is a good place for radio managers to start if they are looking to make the most of this platform. "The average morning show listener misses 80 percent of a morning show's content," he said. "So the potential to harvest additional listening is pretty appealing. But the real win is extending the

(continued on page 25)

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Protect Your Most Valuable Asset: Your Station License

The license from the FCC does far more than just hang on the studio wall

BY CHRIS WYGAL

Broadcast management and engineering deal with countless moving parts and people. Anyone in the broadcast world can attest to seeing a GM in a sales meeting one minute and heading out to a remote broadcast the next. The engineers are busy with IT tasks, transmitters, studios and fixing toilets.

While on-air presentation is basically what we "do," the question is: What is tangible about our line of business? What is most at risk? The answer is, the station license. It is, quite literally, everything.

The license from the FCC does far more than hang on the studio wall. It is the document that says a broadcast entity has the legal right to occupy a specific part of the government-regulated broadcast spectrum. We should be reminded that the government has unfettered oversight concerning the legal operation of a broadcast plant. While it's no secret that a random FCC inspection is a potentially gut-wrenching experience, there are reasonable steps that management and engineering can take that will ulti-

mately protect the station license.

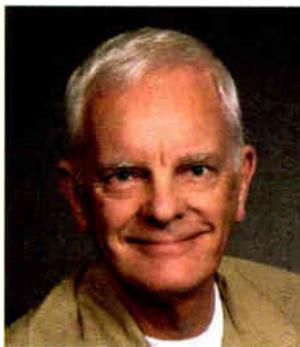
ANTENNA REGISTRATION

Jim Dalke, the administrator of the Washington State Association of Broadcasters Alternative Broadcast Inspection Program, served as an ABIP inspector in the state for 10 years.

He found that one of the most common regulatory infractions uncovered by inspectors centers around antenna registration requirements. For example, a station is held responsible for proper tower painting and lighting regardless of whether the tower is leased or owned by the station.

The station is most certainly responsible for correct signage and fencing. Dalke encourages stations to keep tower sites mowed and clean. An inspector will appreciate a well-kept tower site.

Other common inspection problems include improper power monitoring (especially for TV and AM broadcasters) and improper EAS monitoring



Jim Dalke

assignments. Logging of missed sent and received tests is important.

The public file must be in order. However, the recent ruling that public files be kept and made available online has forced stations to do better, and Dalke indicates that public file infractions are far fewer of late.

In the past, many stations kept a copy of Title 47 of the Code of Federal Regulations, in the facility. This has become unnecessary as CFR 47 is now available online for quick access and reference.

THREE STEPS TO TAKE

In his presentation at the NAB Show called "Protecting the FCC Station License," Dalke suggests that there are three key considerations.

The first is proper installation of a qualified Designated Chief Operator. The DCO, most commonly a chief engineer, is an employee or contractor who can knowledgeably execute FCC regulations. At a time when full-time engineers may be hard to keep on the payroll,

a contract engineer can equally serve as the DCO. The key is that the DCO knows the broadcast operation well, is aware of and able to implement FCC regulations properly and can effectively guide an FCC inspector through the facility during an inspection.

The second key component is satisfactory completion of the FCC Self-Inspection Checklist. The checklist is available for easy download and has specific sets of requirements for AM, FM, TV, LPFM, translator and booster stations. Caution, the FCC Self-Inspection Checklist is not exhaustive and indeed parts of it are out of date. It will, nonetheless, allow the broadcaster to address the most frequently violated broadcast regulations. The checklist is best completed by the DCO.

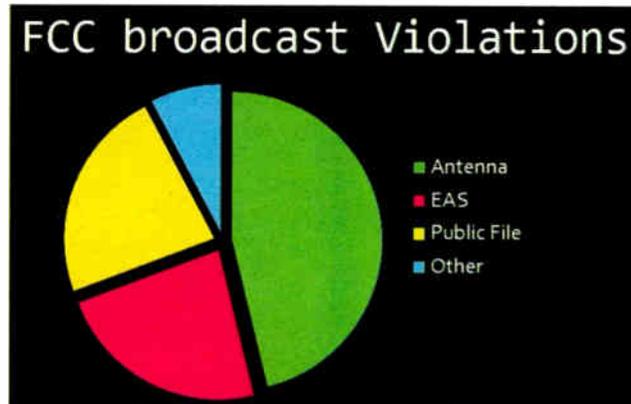
The third key component that will help protect the FCC license from regulation discrepancies is to enroll the station into the Alternative Broadcast Inspection Program. ABIP is provided by most state broadcast associations. Scheduling an ABIP inspector is, by far, more settling than undergoing an actual random FCC inspection. It is not a free

service, but well worth the quick application process and financial investment.

WHAT TO EXPECT

The ABIP inspector is a qualified engineer who is approved by the regional FCC field office. The inspector comes to the facility at a scheduled time and generally spends 4 to 6 hours going over items specific to the Self-Inspection Checklist and CFR 47.

The inspector will review his or her findings with the chief operator and management and suggest avenues to take that will lead to a successful FCC inspection should that day come. As opposed to a real inspection, the ABIP inspector will allow a reasonable amount of time (as much as 90 days) for the station to resolve its compliance problems.



A rough estimate, courtesy of Jim Dalke, of how violations break down.

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PODCASTING

(continued from page 22)

brand with original content.”

The single biggest thing that delineates a successful podcaster from a mediocre one is quality, said Dan Franks, president of the podcast conference organization Podcast Movement.

“Podcasters have learned that although technology has made it easier to just create a podcast, the successful ones have learned that quality of content and audio is still king,” said Franks, who will be speaking at the session “How to Grow, and Keep, an Audience for Your Podcast.”

“The podcasts that see the most success are the ones that are not only well-thought-out when it comes to formatting the content of the show, but also show care in the production quality as well.”

It’s also important that radio managers keep this reality in mind: Podcast listeners love it, in part, because it’s different from radio, he said.

“Not only in the way it is consumed, but also in the content itself,” Franks said. “Very rarely do we see radio shows simply repurposed into podcasts become successful. The shows we see received the best are ones that contain completely new content, whether it be an extension of a daily radio show, or a completely new show altogether.”

At NAB, sessions will introduce radio managers to some newer players in podcasting including Pandora, iHeart and Luminary, the latter of which recently told the New York Times that it is working to become “synonymous with podcasting in the same way Netflix has become synonymous with streaming.” The session will also check on industry veterans like Blubrry, Libsyn and Spreaker.

The expanded Podcast Pavilion at NAB will also house an “Ask the Expert Area” that will offer insights from professionals on audio production, content, marketing, audience growth and monetization.

SPOTIFY

And how does the recent entry of Spotify change the podcasting landscape? The platform is currently offering listeners thousands of browsable podcast options, some with third-party ads integrated within individual episodes.

“The Spotify move is really interesting,” Goldstein said. “Behind Apple, which dominates podcasting, Spotify is already the second most popular platform to listen to. Their bet is more original content will increase podcast listening.”

“That’s good for them two ways,” he said. “First, podcast listeners spend twice the amount of time on Spotify as

music-only listeners; second, that [can] happen without expensive music royalty payments.”

Franks said that Spotify may help boost one of podcasting’s long-standing issues: lack of awareness, even after its recent impressive growth.

“Spotify is a place that already has millions of active users currently listening to audio on a daily basis who might not know what a podcast is, or at the very least are not regular podcast listeners,” Franks said. “With Spotify’s new focus on podcasts, they will now be helping to expose podcasting as a

medium to those listeners.”

Other areas helping to drive increased consumption of digital audio programs like podcasting include connected cars, which Lane from the IAB said are a big factor in driving expanded listening.

“Apple CarPlay, Android Auto and Bluetooth systems have made it easy to connect and listen in the car,” she said. “In fact, 44 percent connect their phones to their car audio system to listen online. This in-car connectivity creates excellent options for advertisers looking to interact with consumers while they are in the car.”

Lane will talk about that issue at the NAB Show session “Inside the Podcast Ad Space.” Other sessions like “Branded Podcasts — An Alternative Revenue Stream for Radio Stations” and “How Successful Podcasters Break Through” are designed to give broadcasters a closer look at what the medium has in store and how radio can jump into the space.

“What I love about the business is the innovation and trial,” added Goldstein. “It’s all dynamically unfolding in real time.”

For more on podcasting, see story on page 44.

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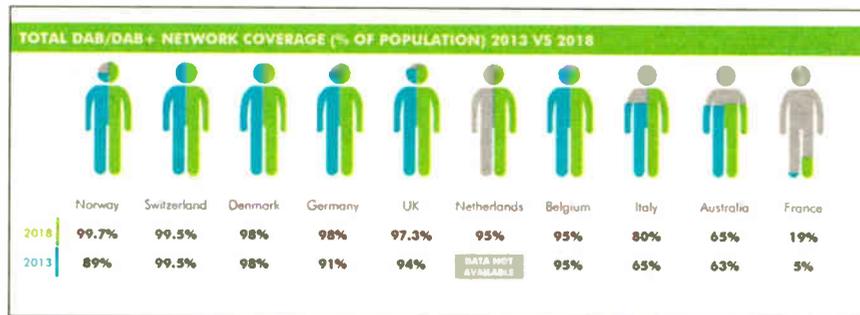
NAB Show Looks at Global Digital Radio Achievements

Spring show session highlights a few of the key growth points this year

BY MARGUERITE CLARK

Digital radio has made significant progress in recent months; the NAB Show session “Digital Radio Roll Out Around the World” will provide attendees with an overview.

Radio World spoke to three of the conference’s speakers — Joan Warner, CEO Commercial Radio Australia; Joe D’Angelo, senior V.P. Radio at Xperi Inc.; and Ole Jorgen Torvmark, CEO at Norsk Radio AS — to gain insight



The increasing population coverage of DAB+ across Europe

Joan Warner says the European Union’s implementation of the European Electronic Communications Code marks a turning point for the radio industry.

into these advances for DAB+ and HD Radio as well as the issues associated with digital deployment and consumer adoption. DRM is another format notable by recent growth, though not part of the panel at press time.

TURNING POINT

Warner, who is also vice president of WorldDAB, says the European Union’s implementation of the European Electronic Communications Code marks a turning point for the radio industry. The directive, which took effect in December, requires all new car radios sold in the 27 EU member states to be capable of receiving digital terrestrial radio as well as any FM or AM functionality manufacturers may want to include.

Warner believes this directive “highlights the wider radio industry’s shift toward a digital future, and more importantly, it ensures that millions of car drivers across Europe will have access to the various benefits presented by digital terrestrial radio.”

Torvmark echoes this sentiment, adding that the new EU code “sends a clear signal to all EU countries, car manufacturers and radio listeners that

one must take into account a digital future for broadcast radio too.”

Reflecting on his native Norway, the first country to switch off national FM services, Torvmark adds that the biggest news there is about radio listening figures, which had declined after the country’s digital switchover in 2017 but are back to where they were before the transition.

“With the digital switchover behind

us, and with the knowledge that we have secured a national, digital, free-to-air backbone for radio distribution, the Norwegian radio industry is focusing on how we can best manage the rest of radio’s distribution, including the user data.”

Now, he says, the focus is on “becoming stronger as an industry across borders in the developments for radio taking place with connected cars, voice-controlled devices and IP distribution.”

In other parts of Europe, stats show Germany leading the way, surpassing the United Kingdom, as the main DAB+ consumer receiver market. Both Italy and France now have receiver legislation in place that requires all new receivers to include digital audio capabilities. And in the U.K. DAB accounts for more than half of all radio listening.

In addition, France’s media regula-

tor Conseil supérieur de l’audiovisuel just published the list of stations that have received a DAB+ license to begin broadcasting nationwide via digital terrestrial radio in 2020. Among recipients are all six of public broadcaster Radio France’s radio channels — France Inter, France Info, France Culture, France Musique, Fip and Mouv’.

OUTSIDE EUROPE

Beyond Europe, Warner points to a number of markets she says WorldDAB is monitoring. These include Vietnam and Thailand, where a 20-month trial with 11 stations is expected to go on air this year in Bangkok.

“Vietnam is also hoping to complete a digital switchover by 2025,” she said. “The first DAB+ trials in the country were conducted in Hanoi in 2013, and more trials are expected this year. The results of the trials in Vietnam are set to be evaluated in 2020.”

In North America, the HD Radio system continues to move forward, with increasing commercial deployment in Mexico, the United States and Canada. In Mexico, D’Angelo counts more than 100 stations that have converted to the digital radio standard, and in Canada, he says, broadcasters continue to add stations and evaluate the system performance as they move through their regulatory process.

“The strong show of support by broadcasters has helped drive an

(continued on page 30)

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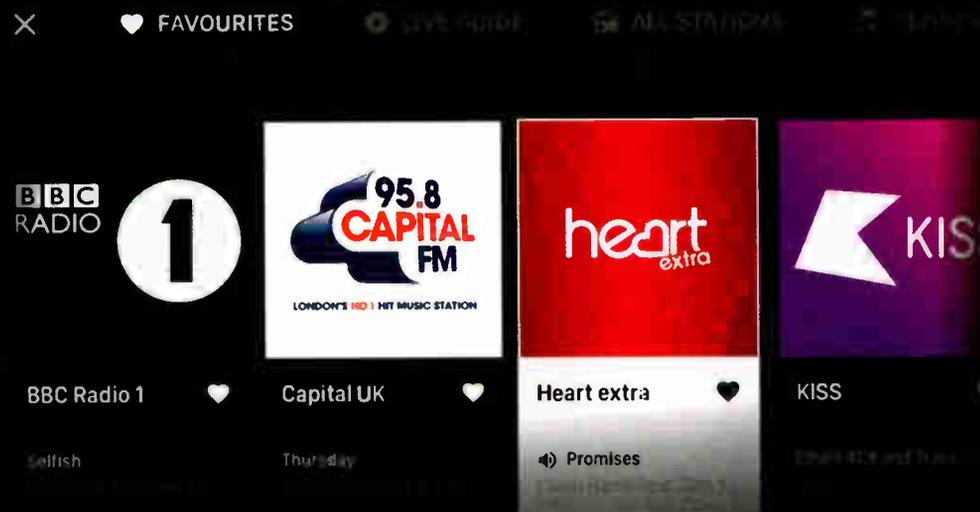
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GLOBAL DIGITAL

(continued from page 26)

increase in HD Radio-equipped cars,” said D’Angelo. “There are now over 55 million cars on the road with HD Radio technology and over 4,300 HD Radio broadcast programs.”

D’Angelo said that recent activities in South America and Southeast Asia seem to indicate that countries in those regions are ready to begin the transition to digital broadcasting. “For years, the lack of widely available receivers or high price points have slowed the transition to digital in many markets,” he said.

INCREASING MOMENTUM

“However,” he continued, “in the last decade, the radio industry has benefitted from an ever-increasing number of HD Radio and DAB+ models, reflecting a very healthy and vibrant manufacturing and supply chain. In fact, recently the Philippines has broken new ground with the introduction of the first, extremely affordable HD Radio-enabled cell phone.”

But with the changing ways listeners consume audio, how will digital radio remain competitive and/or cooperate with internet-based streaming services?

D’Angelo believes that while broadcast radio operates in a competitive environment, it also has unique advantages over internet-only streaming services. “In many ways, over-the-air radio is the incumbent for audio services and across markets has the benefit of very large/loyal audiences with extremely well established brands and presenters,” he added.

“By investing in all aspects of audio distribution, digital broadcasting, streaming, apps and on-demand,

broadcasters are maintaining their connection with their audience and actually growing time spent listening with their programming across distribution platforms.”

He warns though that broadcasters need to embrace all technologies available to them and create unique programming for each medium as needed.

“We are particularly excited about the intersection of broadcast and IP services in the car. At Xperi we are working hard with broadcasters in over 50 countries to bring these together with the DTS Connected Radio ecosystem. This platform will ensure that listeners get the best possible radio experience in the car and the broadcasters benefit from enhanced insights and metrics to power their programming and operations.”

EMBRACE TECHNOLOGY

In Warner’s opinion, for the radio industry, streaming on the internet is a complimentary delivery platform to allow listeners to continue access content across all platforms and is not a replacement for reliable and robust broadcast radio.

“Broadcast radio and in particular DAB+ is free, reliable and doesn’t require access to the internet or electricity, which makes it still the most efficient and effective way to communicate live to a mass audience, particularly in times of emergency. The radio industry worldwide is ensuring radio content is available across all devices with broadcast radio AM, FM, DAB+ as the backbone of the business and where the bulk of listening takes place.”

Warner, Tovmark and D’Angelo agree that radio’s forte is its adaptability and that the medium — still — has a promising future, also thanks to the industry’s commitment on technology and innovation.

“Voice activation technology is a perfect example,” says Warner. “As people move away from reading and typing instructions, radio has integrated this new technology with Amazon Alexa to ensure radio is part of the user experience and in Australia, users can simply ask Alexa to play their favorite radio station. Radio

Recently the Philippines
has broken new ground with
the introduction of the first,
extremely affordable HD
Radio-enabled cell phone.

— Joe D’Angelo

continues to evolve and integrate new ways of accessing the content produced by radio broadcasters 24/7,” she concluded.

“Radio is so much more than a jukebox of tracks,” added D’Angelo. “It remains a highly curated, timely, local medium that delivers an experience, information and entertainment to listeners that cannot be replicated. It is a critical component of any community and can always be counted on. And, just as radio has transitioned from AM to FM to digital, it will evolve to ensure that streaming does not kill the radio star.”

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The Value of Radio in a Connected World

NABA paper examines strengths and future of radio

FUTURE OF RADIO

BY RANDY J. STINE

The realm of radio broadcasting is being affected drastically by the migration to digital delivery of information and entertainment content. Now a new white paper to be delivered at NAB Show will address the significant opportunities and challenges the digital world presents to terrestrial radio. It will include recommendations about digital radio, hybrid radio and metadata.



Michael Beach

The North American Broadcasters Association, in partnership with NAB, has scheduled its Future of Radio and Audio Symposium as a part of the Broadcast Engineering and Information Technology Conference.

The document, titled "Value Proposition of Radio in a Connected World," takes a strategic look at the next generation of radio and will be discussed on Sunday April 7 at 10:45 a.m. in N258 of the LVCC North Hall. A group of panelists will give perspective on its recommendations.

Discussion will focus on the massive shifts digital is driving within traditional radio broadcasting, according to NABA, including the surging number of audio distribution platforms and how broadcast radio can capitalize on its strengths and avoid the pitfalls new technology can sometimes create.

VALUE PROPOSITION

The paper, prepared by NABA's Next-generation Radio Working Group and posted to its website (www.nabanet.com), is divided into main sections (e.g. Digital Radio, Non-Broadcast Content, Proximity and Listener Affiliation, Hybrid Radio, Metadata, Connected Car), and each section ends with NABA recommendations on a specific topic.

The paper considers how radio has defined itself, the shifting definitions of radio, and how the industry might consider future developments, according to NABA.

"The hope is that practitioners view this document as an information resource helping to make business and technical decisions. Members of NABA feel that radio, as a technology and industry, holds a strong market position and should capi-

talize on these strengths," the group said in a statement.

It continued, "Members of NABA also feel radio as an industry must constantly consider strategic adjustments to continue holding a strong market position. Technology and market forces bring change. The radio industry should seek to stay vital by taking advantage of the changes, and not be content with entrenchment."

Michal Beach, VP of distribution at National Public Radio, leads NABA's Next-Generation Radio Working Group. Session panelists scheduled to appear include Samuel Sousa, senior advisor, streaming R&D at Triton Digital; Steve Newberry, EVP industrial affairs and special projects at NAB; and Dave Casper, SVP of digital services at RAB.

METADATA AND MORE

Beach, who oversees NPR's Public Radio Satellite System, said the work group recommends stations offer audio to their listeners on as many platforms as possible to "grow audience and take advantage of cross-promotion opportunities."

The paper identifies some of the main strengths of radio (localism, brand recognition, a public service for the community, reach, etc.), but Beach said the document is less a listing of the values of radio than a tool for stations and groups to use to think about and evaluate the best way forward.

The working group shared some of its opinions published in the paper with Radio World:

- Radio stations should strongly consider adopting HD Radio hybrid IBOC mode per the NABA position paper on a voluntary North American digital radio standard.
- Radio stations and station groups should participate with national and international organizations to help define what criteria to adopt to make the decision to go to an all-digital transmission.
- Management of radio stations and networks should immediately begin supporting internet-based content for use by hybrid radio receivers. Strong broadcaster support is vital for adoption of hybrid radio technology, especially with automakers.

- Radio stations should adopt best practice use of metadata per the documents developed by the National Association of Broadcasters.

Beach said data shows that adding static metadata increases listening time, and adding dynamic metadata increases listening time even more.

"If using dynamic metadata, it is the opinion of the work group that stations should experiment to understand the best refresh rate of text and graphics to get the best advantage of the content without distracting drivers," according to the paper.

COMPETITIVE ADVANTAGE

The report also identifies advantages radio can lean on, including its professional content, brand recognition, reach, business sustainability and technical know-how.

Lawrence Galkoff, GM of Radioplayer Worldwide, said radio has to compete at all levels in order to maintain audience in the future.

"To me, digital distribution and the internet are the biggest game-changers in the radio industry since the invention of transistors. It's a technological revolution. If radio is not in the digital space, it will lose listeners to the very many and growing options that are available," Galkoff said.

He continued, "Radio needs to keep attracting new listeners. Younger people will not just find radio when they get older, they need to have it as part of their



Lawrence Galkoff

lifestyle from an early age so radio needs to be in the places that they go to for entertainment and we need to be strong enough to compete with all the other sources of entertainment that are available to them."

Radioplayer, a collaborative radio aggregator, is available in eight countries in Europe.

Galkoff said his organization has found that if there is no metadata when listeners search for a station, they are likely to move on. "This extends to having great logos rather than providing big empty gaps on vehicle dashboards. Radio has to sound and look good."

NABA is a nonprofit association of broadcasting associations in the United States, Canada and Mexico. It is headquartered in Toronto. This is its fourth Future of Radio and Audio Symposium; the previous three were standalone events for NABA members, held in Toronto, Washington and Mexico City.

OF SPECIAL INTEREST

DFX Engage: The Connected Radio Platform — Visualizing Hybrid Radio

Monday, 3:20-4:40 p.m., Room N260 - C

Over the past year, both NAB and the BBC have conducted separate efforts with Xperi to develop customized user interfaces for DTS Connected Radio, a hybrid platform combining OTA radio and internet. "The NAB effort, conducted under Pilot, involved getting feedback from broadcast professionals with NAB member companies, to see how they would like to take advantage of what the Connected Radio platform has to offer," NAB's David Layer told us. "With that information in hand, we used the Connected Radio Evaluation Unit to implement some of these ideas in a prototype fashion, and we'll be giving attendees an opportunity to see the resulting interface (as well as the one developed by the BBC) during the DFX Engage! session."

Pilot MP11 Lab Test Project

Wednesday, 3:20-3:40 p.m., Room N256

The FM band HD Radio system supports an extended hybrid service mode, MP11, planned for implementation in receivers and transmission equipment soon. It makes an additional 24 kbps of data capacity available, bringing the total data capacity of the signal to 148 kbps. This could allow, for instance, support for multicast channels or to speed up the transmission of Artist Experience images to receivers. Pilot, working with Xperi and transmission Nautel, have been doing lab tests to characterize the interference behavior of this mode. This session will discuss results and their implications on the introduction of MP11. David Layer said the tests fall into two principal groups. "The first group are designed to measure the impact of the MP11 digital sidebands on the audio quality of the analog FM host signal, whereas the second group do the reverse, assess the impact of the analog FM host on the close-in MP11 digital sidebands."



Show Explores the "In-Vehicle Experience"

A series of presentations will explore implications of autonomous vehicles on content consumption, delivery and customized experiences for riders. Location for all sessions is Booth N3311.



Mobility Stories for the Passenger Economy of Today and Tomorrow: A Panel Discussion with Waze and Broadcasters

While oriented toward TV attendees, the Waze for Broadcasters program also has radio implications as Waze data is used in traffic news reporting for 850+ partners.
Monday, 10:30 a.m.

Today's In-Car Digital Radio Experience

Xperi says 50 million vehicles have been shipped with HD Radio digital receivers. This Xperi session explores how these radios have changed the listener experience with "a visual walkthrough of today's dash" including implementations from several automakers.
Monday, 11:30 a.m.

Turning the Car into a Tailored Entertainment Hub

How to turn cars into an extension of content services? Speakers from ACCESS Europe, Byton and France24 discuss the opportunities.
Monday, 2 p.m.

Connected Cars and Next Gen TV: Infrastructure Decisions Could Be Key to ATSC 3.0 Adoption

How will Next Generation TV (ATSC 3.0) fit into the world of connected and autonomous vehicles? Speakers from Blackberry, Awarn Alliance, Regional Transportation Commission of Southern Nevada, Intelligent Transportation Society of America.
Monday, 3 p.m.

AvisBudget Group on Connected Car, Future Mobility and New Media Models

Tuesday, 10:30 a.m.

In-Car Entertainment Perspectives: Piloted Driving ON! Radio OFF?

A presentation from Audi.
Tuesday, 11:30 a.m.

Broadcast and IP in the Car — How Will These Converge?

How will the broadcast industry take advantage of IP connectivity and what can the industry do to remain the leading source of entertainment in the vehicle? An Xperi session.
Tuesday, 1 p.m.

The Personalized Future of In-Vehicle Entertainment

"With executives from iHeart, Waze, Tuneln and others, this session will explore how streaming content providers will shape and influence the future of how drivers and passengers significantly improve the personalization,

access and general experiences for their radio, music, sports and podcasts within the car."
Tuesday, 3 p.m.

Connected Cars Will Run on Satellite

Cars are connected today via cellular networks. "But try streaming a Netflix show for your kids and the limits become apparent," the organizers write; as cars move toward autonomy, they will need up-to-date maps to supplement vision systems as well as massive software

updates. But the 5G pipe will be focused on cities for the near future. This session explores the role of satellite connectivity. Speakers from the World Teleport Association, Kymeta, SES and OneWeb.
Wednesday, 10:30 a.m.

Beyond Audio: Radio's Opportunity in Autonomous Vehicles, IoT, and Other Services

An Xperi session explores services that digital radio can deliver and how can broadcasters can participate in Vehicle to Infrastructure (V2X) with autonomous vehicles, communicate

with industrial appliances or have a role in the the connected devices in our homes.
Wednesday, 1 p.m.

Creating a Seamless Entertainment UX in the Connected Car

It's estimated that by 2020, nine out of 10 new cars will be connected to the internet, opening up entertainment experiences that bridge terrestrial and satellite radio, streaming services and other sources. Auto, radio and data executives discuss next-generation infotainment. Speakers from Ford, iHeartMedia and Gracenote, moderated by Paul McLane of Radio World.
Wednesday, 3 p.m.



Whatever your STL strategy:

- Group owner of multiple stations in a market with co-located studio and transmitter sites
- AM station adding one or more FM Translators to a common site
- Backup for multiple station cluster

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The Starlink SL9003QHP-8SLAN overcomes overcrowded 950 MHz STL channels in your market by concentrating multiple stations on one licensed STL frequency. Perfect for main or backup service, it is extremely cost effective when compared to individual single station STL links.



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Moseley uses proprietary technologies and owns more than 50 patents and has delivered more than a million radios deployed in over 120 countries.



This is a selection of exhibitors of interest at the 2019 NAB Show. Highlights are paid for by exhibitors; information is from the companies. Check on-site program for changes and full list. Booths preceded by C are in the Central Hall, N is North Hall, SL is South Lower, SU is South Upper, OE is Outdoor-Equipment, MR is Meeting Room, L is Lobby.

EXHIBIT HOURS

Monday, April 8: 10 a.m. – 6 p.m.

Tuesday, April 9: 9 a.m. – 6 p.m.

Wednesday, April 10: 9 a.m. – 6 p.m.

Thursday, April 11: 9 a.m. – 2 p.m.

AEQ

C3651

Aldena Telecomunicazioni

C1110



ANGRY AUDIO BGS: C172, BSW: C1330

Guest Gizmo — The Guest Gizmo keeps studio guests sounding their best with a cough button for mic muting, headphone amp with volume control and a relay to light mic arm tallies. Easy to wire, installs in minutes with a standard hole saw; premium components throughout. Essential for every guest mic position.

Balancing Gadget — More than just a matching device, the Balancing Gadget with exclusive "Ground-Breaking" technology suppresses ground loop noise while converting unbalanced signals to pristine, broadcast-grade balanced audio. Internal low-noise linear power supply and direct-coupled transformerless audio circuitry; available in single, dual and bi-directional models.

Talkshow Gadget — Turn ordinary mixers into radio mixers with the Talkshow Gadget. Adds essential features like monitor volume control, second monitor input and automatic speaker muting, plus logic for "On Air" lamps and push-button on/off control of up to four mic channels. Tabletop, under-desk or in-rack mounting options; internal power supply.

Failsafe Gadget — Get peace of mind with the Failsafe Gadget! Connect your main program output and backup feed to the balanced inputs, and select silence-sense interval and threshold. If primary audio is interrupted, your backup source automatically switches to air while the logic circuit sends an alert. So long, dead air.

Distribution Gadget — Distribution Gadget with exclusive "Ground-Breaking" technology suppresses input ground loop noise before sending pristine audio to eight destinations. Dual inputs (balanced and unbalanced) add program switching capability stereo/mono summing and mode switching adds unparalleled flexibility. Sonically-transparent with tons of headroom — up to 24 dBm per output.

Angry Audio
answers@angryaudio.com
https://angryaudio.com
2000 Mallory Ln., Ste. 130-42
Franklin, TN 37067

Arctic Palm Technology Inc. N5627

Center Stage Live — Advanced metadata posting. Now Playing information from over 90 sources to RDS/RBDS, HD Radio and The Artist Experience, DTS Connected Radio with free artist images for HD Radio, web sites, streaming and web services.

Arrakis Systems N6211

DARC Surface is our Dante AoIP solution for broadcast radio and other Dante applications. Visit our booth to see the 12-channel digital Dante board. Also, ARC-5 Console is our brand-new five-channel board for podcast, small broadcast or internet radio. With two mic, one line, one USB and mix minus bus, the ARC-5 is a powerful and affordable board. Also, APEX Radio Automation is newly updated and

extremely powerful. Excellent for broadcast and internet radio. Check out the latest hardware and software for the APEX automation system.

AudioScience N5009

Professional sound cards for broadcast automation systems and network audio products for pro audio installations. For over 20 years AudioScience has manufactured its products in the U.S.

Avid SU801

Pro Tools | Ultimate is a comprehensive toolset for music and audio post production. It offers cloud collaboration enhancements and immersive sound mixing integrations with Dolby Atmos to handle the most respected content creators in music, film and television. Also, **Media Composer | Ultimate** empowers creative teams with access to Avid's collaborative capabilities, adds support for shared storage, and includes tools like **Media Composer | ScriptSync Option** and **Media Composer | PhraseFind Option** to accelerate editing and make the most of every spoken word in a project. Also, **Avid Link**, the free mobile and desktop app, allows anyone in music, film and television to promote their skills and get discovered; connect with the creative community; manage projects, products and workflows; and expand their creative capabilities.

Barix C1139

Silence Monitor is a web-accessible, analog input audio monitoring device that delivers the highest levels of quality assurance, monitoring audio 24/7 and sending real-time alerts when silence is detected. Silence Monitor sends a 10-second pre-alarm audio clip and offers optional LTE 4G/ 3G/NB-IoT connection for backup. Also, Barix is introducing a family of IP audio codecs for the U.S. market in cooperation with Digigram. The Barix by Digigram X/LINK series provides advanced features including fault-tolerant

redundancy. Also, the new Instreamer ICE encoder is for Icecast-based streaming applications such as internet radio, background music and multi-site audio distribution. Bandwidth-efficient AAC+ streams can be sent to an external Icecast service for unlimited propagation or distributed to up to 100 listeners via the unit's built-in Icecast server. Also, Barix will showcase uncompressed, IP-based studio-to-transmitter links combining Exstreamer 500 hardware endpoints with StreamGuys' Uncompressed Reflector Service for simplified management, monitoring and deployment.

Belar N5920

Belar Cloud Server software adds enhanced functionality to our existing products. This software may be run in the cloud or locally to provide multiple simultaneous connections supporting SNMP, enhanced email alarms/status, Android/Apple App support and audio streaming. Also: The FMHD-1 now supports Artist Experience with the latest WizWin software update available on our website. This update enables the software to display album art, station logos, SIG data and log event triggers.

Bittree SU6221

The industry's first Dante patchbay is a 16x16 I/O assembly with Dante Brooklyn module, high-fidelity A/D and D/A conversion, and interfacing connectors for DC power in, audio I/O, word clock I/O and status/meter signals. Connects to Dante Virtual Soundcard and countless other Dante devices.

Broadcast Bionics N5911

The **Bionic Studio** provides visionary studio tools at the forefront of broadcast technology that listen, watch and react to content in real time. It delivers information and control over every aspect of studio production, audience interactivity and social engagement. Also, **Bionic Portal** — search and insight tool with auto segmentation, topic detection, linking and recommendation capabilities with multi object recorder. Locate shareable, compelling content; extract multi track audio, video and metadata to your desktop tools. Capture every element of live radio from the media and mixing telemetry to transcription and face recognition for re-purposing content for multi-platform applications.

Broadcasters General Store C1722

Since 1979, equipment for the broadcast industry ranging from legendary stations to the smallest

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SOME WORDS SHOULD BE OBSCENE AND NOT HEARD



Eventide Broadcast Delays are designed to keep profanity off your air, and angry listeners, embarrassed advertisers, and the FCC off your back. We invented the obscenity delay and have a solution for stations large and small that provides up to 80 seconds of the highest quality revenue and license-protecting delay.

Our new HD compatible BD600, 24-bit delay, comes standard with AES/EBU, and provides up to 80 seconds of memory — twice as much as other delays. There are fully adjustable Delay and Dump functions, and a Sneeze function which “edits” audio entering the delay, allowing the host to sneeze, cough, or make a short comment without being heard on air.

The BD600 offers two different methods of delay buildup and

reduction: Eventide's catch-up and catch-down system, and an exclusive fast-entry-and-exit feature which allows starting a broadcast with the delay already built up to a safe amount and ending it with a rapid reduction of delay.

For HD, the BD600 offers MicroPrecision Delay™ mode which allows up to 10 seconds of delay to be adjusted in real time in 100 nanosecond increments. This is useful for synchronizing analog and digital signals while on-air, without audible artifacts, to maintain a seamless user experience.

Whatever your size, whatever your format, you can't expect to protect the integrity of your air and the foundation of your business without an Eventide Broadcast Delay in your rack.

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World Radio History

facilities. Whether it's a studio rebuild or a handful of connectors, BGS takes care of everything. Family-owned since inception the business is now being run by the second generation of the Shute and Kerstin families.

BSI/Broadcast Software International N5711
Thousands of broadcasters rely on BSI every day for radio automation software, playout and multichannel logging/skimming solutions. Developed and supported in the United States by a dedicated team of broadcast professionals, our software has helped BSI become one of the leading suppliers of small, medium and multistation markets with distributors on every continent.

Burk Technology N5224
Arcturus is a turnkey solution for managing multiplexed antenna sites. The system monitors key RF and environmental parameters and takes action when necessary to minimize the risk of damage to combiners, transmission lines and antennas. Custom Views provide comprehensive visual status and touch screen control. Also: Plus-X VSWR monitors forward and reflected power on up to four transmission lines and interrupts transmitter interlocks when reflected power or VSWR exceeds a preset threshold. Three strike logic provides quick recovery from transient events. Also, the PRF-1 Precision RF Sensor produces a scalable DC output proportional to RF power. Wide dynamic range and true RMS sampling enable accurate measurement of individual transmitter outputs or multi-channel signals from FM or TV combiners. Also, ARC Plus Touch has new features and capabilities including timer channels for calculating elapsed or accumulated time, new meter and status actions, increased SNMP support, and enhancements to virtual channels and Jet Active Flowcharts. Also: AutoPilot software makes it easier to create Custom Views with new features like group selection and editing, autoscaling and embedded HTML5 web pages. Enhanced WarpEngine capabilities bring speed and flexibility to NOCs of all sizes.

BW Broadcast N7116

Calrec Audio C7408
Calrec's Impulse core is a powerful audio processing and routing engine with AES67 and SMPTE 2110 connectivity. Its DSP platform gives customers a clear upgrade path to IP. Impulse provides 3D immersive paths and panning for NGA applications and has an integral AoIP router, which supports NMOS and mDNS/Ravenna. Also, Type R is a modular, expandable, IP-based mixing system that utilizes standard networking technology with configurable soft panels to be tailored to operator needs. It provides customization across networks, open control protocols and surface personalization. Type R can be used without a physical surface via Calrec's browser-based Assist application. Also, Calrec's VP2 is a virtualized mixing system that enables a station to reap the benefits of a Calrec console without the physical system. Setup and control are via Calrec's Assist software and VP2's 4U core. Calrec Serial Control Protocol allows control by an automation system and Hydra2.

ChyronHego SL1208

Comrex C2330
ACCESS NX Rack features new hardware, allowing

for AES67, AES3 or analog audio I/O. NX Rack supports an array of connection protocols and audio encoders, and is driven via a new HTML5-based web user interface. ACCESS NX Rack is backward-compatible with all Comrex IP audio codecs and the Comrex FieldTap smartphone app. For users who need to run multiple IP codecs at once, Comrex has created ACCESS MultiRack. ACCESS MultiRack is equivalent to five ACCESS codecs, contained within a sleek 1RU chassis. MultiRack is compatible with NX Portable and BRIC-Link codecs, plus the Comrex FieldTap smartphone app. MultiRack features AES67 compatibility on all five codecs, along with AES 3 and analog compatibility in the first codec. Both of these new codecs will feature HotSwap, a new function included with the latest version of ACCESS firmware. HotSwap allows users to designate one network as a backup that will only engage when the primary network has failed. Fall-over to backup happens in a matter of seconds, and fallback is seamless. EarShot IFB is a hardware-based VoIP (Voice-over-IP) auto-coupler solution that replaces Plain Old Telephone Service couplers. VoIP technology makes it possible to replace up to 30 telephone couplers with one Ethernet connection, reducing costs and making it easier to supply audio feeds to more listeners.

CPI-Eimac N6512, SU3417
Satellite communications amplifier subsystems (both VED and solid-state), microwave vacuum electron devices that span the power/frequency spectrum including klystrons, TWTs, CCTWTs, Eimac triodes and tetrodes for FM and shortwave radio broadcasting and Econco rebuilt tubes. CPI Antenna Systems Division is a multinational manufacturer of high-performance, engineered antenna systems for specialized applications.

D&M Broadcast N6527

Dan Dugan Sound Design C1118
The Dugan Model E-2A Automixer with analog and ADAT I/O incorporates 28 channels of processing (12 balanced analog plus 16 ADAT) and supports all Dugan automixing algorithms. The Model E-2A may be linked with additional digital Dugan units for system expansion.



DAVICOM, DIVISION OF COMLAB INC. N6827

Davicom's Cortex 320 is the newest member of the Cortex family. For stations on a tight budget but not requiring extensive IP network monitoring power, the Cortex 320 has ample I/O, an SNMP agent and just as many smarts as its big brother, the Cortex 360.

Davicom
dvinfo@davicom.com
http://davicom.com
2272 Leon-Harmel St.
Quebec G1N4L2 Canada



Photo by Al Powers

The Podcasting Pavilion in the Central Hall includes an Ask the Expert Area produced with the Podcast Engineering School.

DB Elettronica N6824

Delta Meccanica C3135

Densitron N4515
URReady USB rack-mounted solutions in 1U and 2U configuration. Designed to meet broadcast demands in portable production units, studios, OB vehicles and control rooms, these exceptional units offer easy-to-mount housing, plug-and-play connectivity, Windows and Linux OS support and a 2880x240 resolution.

DEVA Broadcast/Sound4 N5916
The DB4005 SDR-Based FM Radio Modulation Analyzer and Monitoring Receiver is a third-generation digital FM radio modulation analyzer and monitoring receiver. The MPX input allows users to monitor external baseband signals, regardless of whether they are from a composite STL, FM encoder or from an off-air source. A powerful tool with SDR FM tuner-based signal processing guaranteed by sophisticated DSP algorithms, it offers incredible precision, a loudness meter and detailed readings of all the multiplex FM signal components. You can both measure the important parameters of your own signal and monitor up to 50 other FM radio stations. Easy to connect to and control, this device is radio monitoring at its finest. Also: A selection of products ranging from FM monitoring through IP audio will be available at DEVA's display at the NAB. An important highlight will be the DB3011 model, dedicated to HD Radio monitoring.

Dielectric C2213
TV and Radio Monitoring System — New revolutionary measurement system of the antenna and line was developed by DAC and Dielectric LLC. It provides real-time information on transmission line and antenna status with the stations at full power. The system detects magnitude and location of any line and antenna degradation including a high voltage arc. Also: Dielectric's new standard elbows are being produced in broadband designs to serve Channels 2 through 50, covering both VHF and UHF assignments. Available in all rigid line sizes, it replaces the digiTLine elbow at a lower

cost point and with shorter lead times. Also: DCR-Q Low Band VHF CP Antenna provides Channel 4 and 5 broadcasters with a much lighter option that reduces tower loading and physical space. Its circular polarization brings additional value to Channel 4 and 5 broadcasters by improving indoor reception. Complete low-band VHF systems include new, specialized Channel 4/5 filters.

Digigram N5919
IQDYA Talk is a portable IP audio codec dedicated to live remote broadcasting for radio and TV. Designed with an intuitive user interface as simple as a smartphone, it allows remote reporters to perform all the key actions in just two clicks. Live reporting or commentary can be performed, as well as studio quality interviews for up to four journalists and guests, with a user experience designed for the non-technical. Audio content can then be simply streamed through a large number of wired or wireless "last mile" connections. Also, Digigram will launch a complete remote broadcast solution made of a range of IP codec both rackable and portable, as well as a suite of web-based applications to control and monitor the fleet of codecs.

DJB Software N6811
Sit in on a one-on-one demo of DJB ZONE software for a surreal experience in broadcasting.

Elber N4520

ENCO Systems N2524, SL5616
ENCO's enCaption automated captioning appliance is now available in a special package for radio broadcasters for real-time, live captioning of audio content to radio audiences. enCaption uses ENCO's latest speaker-independent, deep neural network-based speech recognition engine to closely inspect and transcribe audio in near real-time with exceptional accuracy. Also, new for NAB, ENCO's enCaption automated captioning appliance for TV integrates an internal, instant closed captioning encoder, eliminating the need for a separate encoder in the workflow. ENCO will also now offer a cloud-based streaming option that puts the entire multiplatform captioning workflow in the cloud for the first time. Also: ENCO's MOM solution for auto-

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OPXONE

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mated television and video allows a single operator to ingest, schedule, edit and playout media from the same system, streamlining entire workflows into one program. New for NAB, ENCO announces NDI compatibility for IP-based production workflows.

ERI-Electronics Research, Inc. C1322

We extend the CL Series Liquid Cooled RF Load family with models that include an integrated UHF Fine Matcher and an integrated adjustable directional coupler at the load input as well. Loads are available in 3-1/8-inch (Model CL313), 4-1/16-inch (Model CL413) or 6-1/8-inch (Model CL613) swivel flange, female inputs. This family of liquid-cooled UHF coaxial loads offer proven design for handling high RF power at low cost. They employ a solution of antifreeze and water as both coolant and resistive material. ERI will also introduce two high-band VHF hybrid combiners; the CH240 is a 3 dB hybrid coupler and the CH245 is a 3.68/2.43 dB hybrid; both are primarily for use as power combiners. Both are rated for 20 kW, average power, at their combined output. Also: ERI has developed two new high-rejection low-pass harmonic filters for high-band VHF TV.

ESE C2539

The ES-185F/PTP is a GPS Master Clock/Time Code Generator/PTP/NTP Time Server. The unit receives accurate time and date information from Global Positioning System satellites and supplies this data to the user in a variety of forms.

Eventide N6911

The H9000 with eight times the power of the H8000FW plus optional Dante and MADI I/O. Control with the Emote app for Mac and PC and plug-ins for AAX, AU and VST. Eventide broadcast delays now with improved audio (>104 dB S/N) and USB. The BD600+ offers 80 seconds of delay, and up to 20 seconds of MicroPrecision delay. The BD600E+ offers ext. remote capability, the BD600W+ offers integration with WheatNet IP. Anthology XI is the

all-inclusive effects bundle with 23 plug-ins for music and post.

GatesAir N3303

Flexiva FAX7.5 Radio Transmitter is a 7.5 kw model added to the award-winning Flexiva FAX range of air-cooled transmitters for FM and HD Radio. It fills a gap between existing 5 kW and 10 kW models, and integrates the same compact, high-efficiency and low-maintenance design attributes. Also, GatesAir expands its Maxiva family of DAB Radio transmitters with two DAB+ models for its VAXTE line. They include a 200W low-power transmitter in a 2RU chassis, a 1 kW transmitter in a 4RU chassis. All integrate GatesAir's software-defined XTE exciter. Also: Intraplex Ascent, the North American debut of an audio over IP transport technology demonstration. Ascent lives on a COTS x86 server, providing broadcasters with a highly scalable, redundant and cloud-based transport platform for multichannel contribution and distribution.

Genelec N4520**Gorman-Redlich Mfg. Co. C1124**

EAS1 With Integrated AM/FM/WX Radios — Our most popular line of broadcast Emergency Alert System (EAS) equipment is now available with built-in AM/FM/Weather radios so you no longer have to take up valuable rack space to receive over-the-air alerts from your monitoring assignments. Pair the EAS1 with our CAP-DEC1 for a total alerting system. Also: The all-new Gorman-Redlich Common Alerting Protocol Weather Alert Total Coverage Hub (CAPWATCH) is an easy-to-use alerting device to disseminate NOAA or locally-generated emergency messages to building occupants, radio listeners, and television viewers. Capable of activating PA systems, feeding RDS and video crawls, providing email notifications, and more. Also: Our Directional AM monitor, Model CMR, is now available for stations that share a multiplexed antenna array. Trusted around the world for its reliability and rock-solid



The Broadcast Leadership Training program helps nurture broadcast executives in the fundamentals of purchasing, owning and running a successful station. This year's BLT Reception is Sunday at the Wynn Encore.

readings, the CMR features a 15k Hz IF to eliminate bulky, expensive filter networks. Make sure your pattern is correct with a Gorman-Redlich CMR.

Henry Engineering C1722

SportsCaster is the "missing link" that manages all aspects of play-by-play audio. It mixes the announcers' mics, controls and distributes headphone audio for announcers, produce and camera operators, and provides an intercom for communication between everyone. SportsCaster works with Henry Engineering's Sports Pod announcer stations, and integrates these audio functions in one easy-to-use unit. SportsCaster has inputs for three announcers, a Field Reporter, crowd mic and other sources. There are dedicated outputs for Air, Field Reporter and Camera operators. The unit provides comprehensive monitoring and intercom systems, so the producer can control everything from one place. SportsCaster can be installed in

a few minutes, eliminating the need for multiple mixers, headphone amps, distribution systems, and complicated wiring.

Inovonics N6524

A new family of SiteStreamers called the SOFIA SiteStreamer Plus. It is like a super SiteStreamer with more horsepower and features. The compact SOFIA is 1/2-rack width rather than 1/3 like the INOmini's. The SOFIA has analog and AES Digital audio outputs, as well as an AoIP. It allows up to 10 people to listen remotely to the audio stream simultaneously. At NAB, Inovonics will launch the first model, SOFIA 568 FM/HD Radio SiteStreamer+. It is the first FM/HD Radio monitor-receiver to display AE logos and pictures via a web interface. Other SOFIA models will include FM/RDS, DAB+ and AM. Also: Inovonics is launching a new line of INOmini Monitor-Receiver. Current INOmini receivers will be phased out over time. The new receivers offer larger LCD display, better resolution, flashing red alarm message; independently adjustable analog and digital audio outputs; additional measurement metrics for more information; and firmware that is field upgradeable via USB.

InSoft C1330, C1616

We are presenting our products through our distribution channels. For the U.S. market we'll be showing the latest Visual Radio tech at BSW's booth (C1330) under the HDVmixer brand. BSW will provide live streaming to social media during the entire length of the show, integrating multiple PTZ robotic cameras into a huge HDVmixer system. For the LatAm market, we are showcasing our latest Visual Radio plus visual radio automation software called AVRA 2.0 at Broadcast Depot's booth (C1616). The new radio automation software can play both audio and video files seamlessly and be controlled from a PC, laptop, tablet or even a smartphone.

Jampro Antennas Inc. & AlanDick Broadcast C1913

J3YF 3 element Broadband FM Yagi antenna. Also, ADBL JFWD is an economical Band II Folded Dipole FM Antenna; JCPB FM is a broadband antenna from low to high power. Also featured: RCCS space saving and cost-effective starpoint combiner; rigid line



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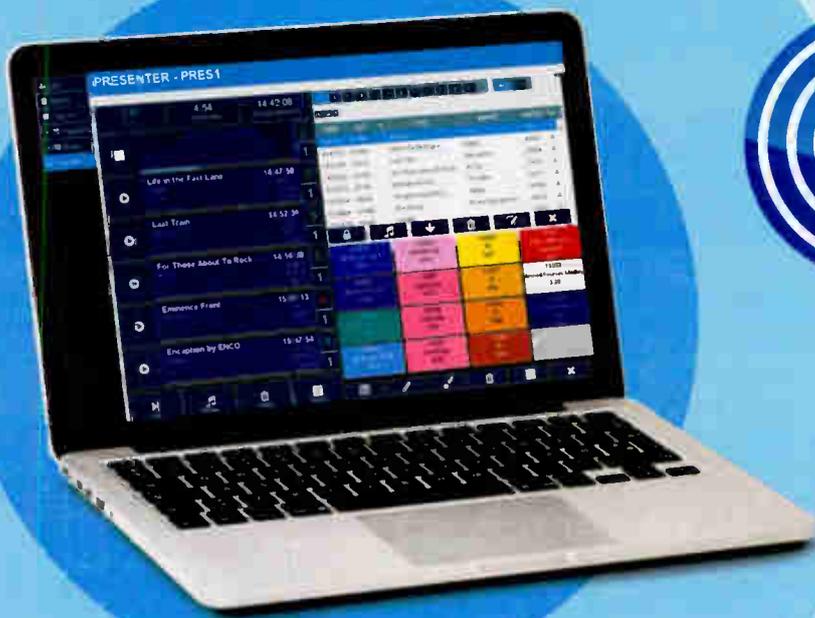


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on display and available for purchase at show. We offer integrated RF broadcast systems. FM, UHF, and VHF antennas, combiners, filters, patch panels, complete line of rigid transmission line, towers and field services.

JK Audio **C6706**
 Newly updated BlueDriver-F3 Wireless Audio Interface plugs directly into any dynamic microphone, allowing wireless audio directly into a smartphone with no external receiver. Provides live Audio-for-Video capture with no lip-sync delay. New feature: The 3.5 mm jack now drives an earpiece or headphones directly for live IFB or video playback monitoring.

Kathrein SE **C1333**
 UHF Omni Xpol broadband omnidirectional antenna, dual input, adjustable polarization ratio. Also, UHF Antenna Panel Xpol Directional Antenna for Elliptical/Circular Polarization. Also: UHF Cavity Slot plug-and-play antenna, low wind load. Also: UHF Pylon Panel Frame Antenna in GRP Radome with wide cardioid pattern. Also: Kathrein Smart Monitoring System for antenna monitoring of VSWR and power, outdoor and indoor.

Kintronic Laboratories Inc. **N5624**
 ISO-CAT6-RU Isolation Inductor — Collocate Cat-6 or Cat-7 connected devices on your AM tower. High-impedance designs to minimize influence on the AM tuning. Available as indoor or weatherproof outdoor units. Fully passive design is robust and includes PoE capability.

Lawo AG **N2503**
 Ruby Mixing Console with SMPTE 2022-7 is sleek, intuitive and powerful. New SMPTE 2022-7 Seamless Protection Switching combined with standards-based AES67 AoIP delivers flawless networking for mission-critical applications. Customizable, context-sensitive touchscreen GUI provides a smooth, integrated workflow; complements familiar physical controls to give instant response in fast-paced production environments. Also: Power Core Audio Mixing Platform — New 64-channel Dante card and MADI card with SRC make Power Core, the AoIP uber-node, more versatile than ever. 1RU delivers 384 channels of AES67 and MADI I/O, eight audio expansion slots, 1,920 routing crosspoints, 96 DSP channels, 80 summing buses. Dual-redundant power and ST2022-7 Seamless Protection Switching, standard. Also: VisTool SOLO

is an elegant new addition to your broadcast studio. It replaces old-fashioned pushbutton panels with the power of VisTool, enabling you to build custom touchscreen GUI displays that run on today's powerful tablet PCs. Also: New features for R3LAY VRX, the multi-touch AES67 Virtual Radio Mixer for Windows PCs, include SMPTE 2022-7 Seamless Protection Switching for network redundancy, output bus audio processing capability, enhanced GPIO control via Ember+, and tight integration with Lawo VSM and Matrix Server facility control software. Also: VisTool is the ultimate screen builder for custom studio control GUIs.

Logitek Electronic Systems **C1916**
 mixIT is a compact, inexpensive yet versatile console featuring 12 faders, two 7-inch touchscreens for source selection and metering, four scene selects, on-board routing controls, program meter, headphone/monitor/studio controls, talkback capability and cue speaker. mixIT operates in conjunction with Logitek's AoIP engines including JetStream Mini, JetStream Plus and the new Jet-67.

Mediaproxy Pty Ltd. **SU2802**

Mandozzi Elettronica **N4520**

Moseley Associates, Inc. **C2218**
 Maverix is a dual-transceiver highly integrated all-outdoor IP radio operating from 6 GHz to 42 GHz, with modulations to 4096QAM, and ultra-wide bandwidth operation. Maverix can achieve capacities up to 5.5 Gbps per radio for the most demanding applications.

MultiCam Systems **N4816**
 Our Visual Radio solution will be shown integrated with various playout automation softwares: RCS Zetta (N2519), WideOrbit (SU7102), Enco (N2524). We also demonstrate high-end integration with Wheatstone (N6806). New features that will be demonstrated for the first time in the U.S. are a PUBLISHER module with Workflows that allows you to automate video on demand on major video platforms like YouTube and Facebook; EDITOR module with Extracts that allows you to create automated Best Of videos by using markers that can be specified on the playout software (Shortkeys) or audio console (SLIO), thanks to API and IP commands; and new PTZ Camera mCAM, with various choice of lenses and colors.

MusicMaster **N5627**
 MusicMaster Pro 7 has new workflow and performance enhancements, including our latest innovation for more efficient scheduling, Virtual Search Depth. Also included are new styles and customization options, easy database field creation, an enhanced Scheduling Calendar dashboard, a simplified Live365 connector, new Library and Clock tools, and more. Also: MusicMaster Client-Server, our top-tier option for large broadcasters who wish to manage data and processing in a central location, has new options for setting user and station permissions, importing songs to a Station from the Enterprise library, merging duplicate songs, printing reports to Word, PDF or rich text formats and more in the new version 2.2 release. Also learn about MusicMaster's enhanced integration with the worldwide leaders in automation, including real-time synchronization of metadata and schedule information.

National Association of Tower Erectors/NATE **C1439**
 Non-profit trade association in the wireless infrastructure industry providing a unified voice for tower erection, service and maintenance companies. More than 850 member companies throughout the United States and more than a dozen other countries.

Nautel **N5924**
 It's Nautel's 50th anniversary, and we're looking not only at the past five decades of broadcast transmission but what's ahead for the industry in the future. Our NUG@NAB Radio Technology Forum will be hosted by Jeff Welton, the popular "Tips 'n Tricks" presenter, who recently received an SBE Educator of the Year award and was just named the Engineering Achievement Award Recipient for 2019 by the Association of Public Radio Engineers.

NKK Switches **N4506**
 NKK SmartSwitch OLED Pushbutton — By combining the functionality of an electromechanical switch with a graphic programmable display, SmartSwitch is a space-saving, dynamic, multi-function device. The SmartSwitch OLED Pushbutton is a fully programmable HMI solution, which features the tactile-feel of function keys with a versatile high resolution 96 RGB x 64 pixel display. Also: NKK SmartSwitch Engineering Dev Kits are designed to accelerate the incorporation of SmartSwitch products into applications by

providing a platform for experimentation and design viability testing. Kits come pre-programmed for basic operation. Schematics, firmware and communication software provided. USB mini-B connection.

NPR Distribution Services **SU3408**
 The Hub @ NPRDS — A one-stop solution for the distribution of your audio content over satellite (C-band and Ku-band) and terrestrially as well as local control of your network with none of the uplink operation headaches.

Omnirax Furniture Co. **N6511**
 Clover is a new adjustable height sit/stand pod-cast/talk table. Also: Innova Custom Broadcast Furniture. Phoenix Line "off-the-shelf" air, talk and production broadcast furniture; WeDesk line of office furniture; Omnirax line of technical furniture for music and video production, command & control and education.

On-Hertz **N2531**

Ooyala **SV1000**
 The Ooyala Flex Media Platform is an open and extensible content supply chain platform that automates tasks, simplifies workflows and speeds up the time-to-market for content creators and distributors. New features include stronger security and enhanced IMF support to significantly reduce costs and improve the efficiency of multi-version, multi-platform distribution.

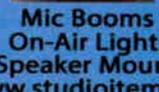
OPNS **N6020**
 SoundID is a powerful automatic content recognition (ACR) platform based on the fingerprinting technology. With almost 100 percent accuracy SoundID can deliver services to various use cases such as content recognition for broadcast certificates, quota calculation, competition monitoring; copyright enforcement for artists and producers; deduplication of content database; and effective audience measurement.

Orban **N4120**
 Bass Impact Engine for FM Processors is a new limiter for Optimod 8600Si, 8600 FM/HD and 8700i processors that delivers powerful bass response while ensuring optimal musicality of program material. It minimizes peak level of the bass, allowing maximum "punch" without adding objectionable artifacts. It's free to existing users of these processors. Also, XPN-AM is a custom processing algorithm for AM stations that can run on multiple platforms. It exploits a psychoacoustic model developed by Bob Orban to maximize reach and intelligibility of AM transmissions while lowering distortion and reducing listening fatigue. Also: SmartRadio, developed with Broadcast Partners, incorporates multichannel production, publication and data-driven tools for a modern hybrid "start to end" modular cloud based radio environment. It utilizes Orban Opticloud processing for both cloud- and web-based audio processing, enabling remote management of both content and audio processing. Social media Analytics included. Also, Orban's openGear solutions bring multiple audio processing algorithms to this modular platform of hardware and software-defined audio and video solutions. Orban processors offered for the platform include Optimod AM, FM and internet streaming processing algorithms along with DTV processing solutions.



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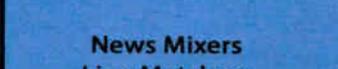



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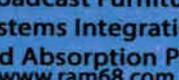


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Paravel Systems N5713

Open source tools and innovative hardware solutions for the broadcast industry. Rivendell Radio Automation is an industry-leading open source solution for radio automation. The WallTime NTP clock and notification system provides an always accurate studio clock along with a show segment counter, VU meters, on-air light and notifications. It interfaces directly with Livewire, WheatNet-IP or Modbus Ethernet GPIO.

PatchAmp Inc. C10106

PA-1212FX 12g Multi-Rate Transceiver/Repeater

Pluxbox N1434

ProCo Sound C2949

The AC Power PowerBOX Taps (JuiceBOX) allow users to tap into PowerCON and TrueONE 20A circuits and distribute power to a variety of connectors and configurations. UL-listed for U.S./Canada, each unit is housed in a heavy-duty, fully-insulated enclosure with numerous output receptacle choices. Also: AC Power Edison LunchBOX distribution products are 60- and 100-amp stage pin flow-thru boxes that include 20a Edison duplex receptacles and 20a 120V circuit breakers. Numerous configurations available, including optional feeder tails (in lieu of male inlet) or camlock feeder tails (in lieu of flow-thru). Also: The latest AC Power Studio Stage Theater (SST) Series offerings. Hundreds of models available. Featuring .09 aluminum chasses, SST Series products are lightweight and durable. All models include Type 1 enclosures, with optional Type 3R for outdoor applications. UL Listed in U.S./Canada. Also: AC Power ProPower RPD Series, a customizable rack panel distribution system that allows users to specify their own configurations. It is AC Power's first fully UL-listed flight case system and first to offer optional ETC SmartPack dimming and ProPlex data distribution solutions.



RCS N2519

Zetta Cloud — With this unique Zetta feature, a station's content is automatically uploaded to the cloud, ready at a moment's notice for playback. From natural disasters to viruses taking down IT infrastructure, whatever the emergency, Zetta Cloud is a high-tech, cutting-edge insurance policy that gets broadcasters back on-air, easily.

RCS

dstokey@rcsworks.com
www.rcsworks.com
445 Hamilton Ave.
White Plains, NY 10601

Riedel Communications C6537

The standalone Bolero Wireless Intercom has all of the features of the Artist-integrated Bolero but can be used alone or integrated into existing comms systems. An integrated GUI provides simple drag-and-drop programming while the exceptional RF performance assures that it works everywhere. Also: The newest member of the MediorNet MicroN App family, the Processing App, features color correction; up-, down-, cross-conversion; and multi-viewer capabilities, further extending the capabilities of the MediorNet ecosystem while eliminating the need for single-purpose accessories. Other available apps include the MultiViewer and IP apps.

Rohde & Schwarz SL6405

Cutting-edge solutions for 5G broadcast, OTT, IP and repack highlighting a new cloud solution for monitoring, a new high-power TV transmitter and new applications for existing solutions. 5G broadcast technologies could positively impact broadcast-

ers and content providers. Specific to radio, R&S will show the THR9 fully liquid-cooled FM radio transmitter with HD Radio capability, utilizing the Generation 4 hardware and software platform. The THR9 is the market leader in energy and space efficiency and is a direct reflection of the company's long-term commitment to radio broadcasting.

SCISYS Media Solutions SU6116

Our dira! product suite covers the entire production workflow required for radio journalism media management through broadcast production, on-air playout, post-production and archiving. dira! Onair Player — Its customizable interface is optimized for self-operated studio workflows and gives radio DJs unmatched control over the content and presentation of a broadcast. Even in demanding environments such as outside broadcasts, the dira! Onair Player supports you to make life easier with a lot of helpful features. Also: The innovative newsroom system OpenMedia is in use worldwide as a standard tool for research, planning and creation of daily news, magazines and sports publications. OpenMedia is regarded as the leading independent system for all editorial workflows and rundown management. OpenMedia NewsBoard is the modern and unified cloud-based user interface for journalists' and editorial teams' story production process. With metadata-driven workflows at its core, NewsBoard can fit teams from a few individuals to thousands of journalists.

Shively N5019

2930 Branch Combiner — Shively Lab's low power branch combiner is the best solution for multiple stations. Shively will custom engineer your system using either 2914 or 2916 bandpass filtering that will provide higher spectral purity, flat in-band frequency response, and typical isolation values of 50 dB or higher, even for frequencies 0.8 MHz apart. Each combined system is designed to provide superior performance in the smallest space possible and are fully IBOC compliant.

Sonifex C3036

Sprite Media Inc. C1722

Sprite Stretch Clock — High-quality, super bright, NTP sync'd accurate analog/digital/military clock. Unique 36-by-11-inch display. Easily changeable styles, clock faces and title with Sprite Command Page. This clock makes your studio look good! Also: The Sprite Welcome will look great in any lobby or hallway. Make your guests feel like VIPs as they see their own names when they visit your facility. The Sprite Welcome Player comes with five styles to suit decor or mood. Just fill in the blanks and press a button.

StreamGuys N2524 (ENCO)

The SGrecast suite of streaming service tools adds SGrewind, which automatically builds a rolling window of replayable content, giving listeners to radio broadcast streams DVR-like abilities to rewind, pause or restart a live stream from the beginning of a program.

The Rag Place C9945

SPOTS Gaffers Control is the essential tool for complete wireless control of DMX devices, with an intuitive touch screen interface. Compatible light fixtures with integrated CRMX receiver by Lumen Radio. Also: SpiderMount 220TM is a lightweight, ultra-flexible, active vacuum cup mounting system that delivers a multitude of rigging possibilities with ultimate functionality. Ideal for mounting cameras, gimbals and lights or as a foundation for complex rigs. Unique joint design allows it to wrap edges, corners and be mounted on smooth surfaces. Also: HoneyComb SNAPGRID, SNAPBAG Lantern 3' for Hudson Spider, SNAPBOX 4x4 for Astera

The Telos Alliance N5806

Omnia MPX Node — First purpose-built hardware codec that sends or receives full FM signals at rates as low as 320 kbps using Omnia's MPX algorithm.

RADIOWORLD

RADIO WORLD C2956

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First MPX over IP codec to use AES67 to carry linear MPX-encoded signals. Can be set to encode or decode a pair of nodes creates a complete system. Also: Axia iQx AoIP console looks like a traditional console, but it's a surface and mix engine in one. Axia dove deep with AES67, providing access to every source anywhere on the network. By piggybacking off existing network resources, a station can suddenly build an additional studio with Axia performance, for less. Also: Telos VX Enterprise/Prime+ Phone Systems have built-in support for AES67. With capacity expandable up to 120 hybrids/faders, VX Enterprise is ideal for medium to large facilities, while VX Prime+ with eight-hybrid capacity is ideal for smaller facilities. Also: Today's broadcasters need assurance that their audio processor is future-proof. The Omnia VOLT audio processor is a single unit that can be deployed on any service — FM/AM/DRM/HD/DAB/stereo generation. A high-performance audio processing platform in a compact, 1RU unit that can transform in minutes. Also: The newest Omnia.9 audio processor upgrade the MKII, includes Livewire+ AES67 I/O, a more advanced final clipper and additional logging capabilities. Omnia.9 can be configured for FM/AM, dual FM, three DAB signals, and a separate streaming engine, all with the leg-

endary sound for which Omnia.9 is known.

Tieline the Codec Company **N7119**

VIA Remote Codec — Reimagine remote broadcasts with Tieline's ViA. Connect using dual Ethernet ports, dual USB air cards, an optional LTE module, or use built-in Wi-Fi and stream using a cell phone Wi-Fi hotspot or Wi-Fi access point. Includes record and playback capability, SmartStream PLUS and Fuse-IP bonding. Optional POTS/ISDN modules available. Also: Genie Distribution delivers multipoint audio distribution solutions including six channels point-to-point, three bidirectional stereo or six bidirectional mono streams, plus multicasting and multi-casting solutions. Supports six simultaneous SIP connections and optional ISDN and POTS modules. Dual Gigabit LAN ports dual internal power supplies IPv4/v6plus SmartStream PLUS and Fuse-IP bonding. Also: Merlin PLUS — Save on hardware costs with Merlin PLUS. Create two bidirectional mono or stereo remotes, each with separate bidirectional IFB channels, or create six independent bidirectional mono connections with IP codecs or smartphones using Report-IT. Supports six simultaneous SIP connections. Optional ISDN and POTS modules allow IP, ISDN and POTS remotes. Also: Bridge-IT XTRA

Codec — Tieline's inexpensive STL and multipoint IP codec features a wide range of algorithms, including aptX Enhanced, Opus and AAC-LD/AAC-ELD. Includes an LCD display PPM metering dialing key pad dual internal power supplies.

V-Soft Communications LLC **N5921**

Probe 4 — Updated and upgraded, professional level, RF propagation analysis, modeling of FM and DTV broadcast coverage and interference. Produces spectacular "atlas" type polygon maps while integrating high-resolution population databases with state-of-the-art mapping. Features Longley-Rice, Okamura-Hata, Cost-Hata, PTP, Line-of-sight, ITU, and standard FCC. Includes FCC, census, precise city boundaries and land-cover databases. Also: **FMCommander** — Find new ways to upgrade FM stations, move a transmitter site, map coverage or interference contours. FMCommander now contains the proposed C4 class minimum separations. It integrates FCC, census, terrain, towers, airports, AM stations, railroads, rivers, highways, city and county boundaries into a complete mapping and channel search package. Also: **AM-Pro** has been adopted by the FCC and used daily. Recently updated, it works on your own computer. It creates beautiful, polygon shaped, coverage and interference maps with related tables, all based on the FCC AM rules. AM-Pro also performs automated daytime ground-wave and nighttime sky-wave allocation studies. Also: **Microwave Pro-2** is a frequency allocations and path analysis program. It uses NSMA methodology and ULS data to study broadcast auxiliary, part 101, COALS and CARS projects. The new version adds bidirectional channel analysis. Everything you need to perform your own microwave studies, including the preparation of PCN mailing list.

that brings all the features and functions of Wheatstone's LXE audio console to any touchscreen location. Compatible with existing LXE physical control surfaces or available with companion LXE hardware engine. No limitations; engine and glass can be in separate locations — different rooms or cross-continent. Control multiple remote consoles with one central touchscreen. The ultimate in flexibility.

Wheatstone VoIP Phone System — Rackmount unit integrates existing VoIP phone systems into Wheatstone intelligent network. Up to two dozen incoming lines show up in WheatNet-IP Navigator software — and on every networked Wheatstone control surface and monitor selector. Phone lines can follow the shows they serve; CLID recognition allows call screeners to make appropriate transfers, talent can then forward to any network destination. Integrated auto-attendant can greet callers and record them for use in future program content.

Wheatstone Corp.
wheatstone.com
600 Industrial Dr.
New Bern, NC 28562
252-638-7000

Win-OMT Software **N6819**

Wisycom SRL **C856**

The MRK980 Ultra-Wideband True Diversity Receiver features 1090 MHz bandwidth switching for VHF, UHF and 900 MHz in one rack-mount receiver. With Wisycom LINEAR transmit technology, the system provides up to 30 channels in one 6 MHz channel. The receiver's DSP-FM technology provides narrowband filters with 50 percent more efficiency and 200-250 kHz spacing. Also: The MPR50-IFB compact, belt-pack-style receiver is designed with true-diversity configuration for robust, drop-out free reception. The 232 MHz wideband range (470-700 MHz) provides reliable operation anywhere without changing receivers. Its narrowband filters enable several simultaneous channels of interference-free operation. Alkaline, NiMH, Lithium packs; typical run-time: 9.5 hours on two AA batteries. Also: The SPL2216 Active Antenna Combiner/Splitter provides two-zone coverage with distribution and outputs feeding 16 diversity receivers. Onboard monitoring of bias and diagnostics can be integrated for external monitoring and control of antenna boosters or amplifiers via ethernet connection and PC-based Wisycom Wireless Manager program. 10-28Vdc on four-pin XLR.

Car ecosystem companies like Ford, Waze, Avis Budget Group, the Center for Automotive Research and the Intelligent Transportation Society of America are taking a higher profile at the show in recent years. RadioDNS showed a display from an Audi A8 in 2018.



Wheatstone Corp. **N6806**

X5 Signal Processor — Wheatstone's latest broadcast audio signal processor incorporates a number of new features: built-in FM/HD tuner with integral time alignment; phase linear front and back end processing; RDS data streaming (static and dynamic); Kantar rating system watermarking; complete system activity logging; dynamic mono signal detection and control; and multiple transmitter output feeds: HD, FM, FM multiplex, and HD/FM MPX combined in a time-locked IP data stream.

New Wheatstone TV Console — A compact, high density IP-based television control surface with 32 physical faders (plus paging) and integral touchscreen. Hard and soft switching and controls; AES67 compatible; countertop mount with separate rack engine.

SyncLink MXP-IP Receiver — Translates time-aligned FM/HD data streams from studio end Wheatstone processors (such as the X5) and splits them into separate FM analog, FM digital MPX and HD digital feeds at transmitter site. Eliminates time alignment errors caused by IP-based STL links.

LXE Glass Console — A virtual control surface



WORLDCAST SYSTEMS **N4124**

Audemat RDS Encoder — In line with WorldCast Systems' standards of system versatility, ease of use, and spectral purity, Audemat RDS Encoder is a new, advanced version of the FMB80. Features include MPX/Composite over AES capabilities, a built-in FM Tuner, an intuitive and responsive web interface, ScriptEasy, RDS Edition 2018 standards, and RDS2-readiness.

APT Mobile SureStreamer — APT Mobile SureStreamer is a Mobile Network Access for remotes and OBs over 3G/4G. It improves the quality of IP remotes for uninterrupted audio and video content directly from the field. Advantages include: zero-field configuration, ultra-low latency and zero drop-outs, low OPEX, and compatibility with any codec type and brand.

Ecreso FM 3kW Transmitter — Ecreso FM 3kW is a compact transmitter with the markets lowest OPEX and best audio quality. Its planar design and sixth generation MOSFET offer up to 76 percent efficiency and its advanced features include RDS encoding, five-band sound processing hosted into the direct to channel digital modulator, and SmartFM Artificial Intelligence.

WorldCast Manager — WorldCast Manager is an open and extensible Network Monitoring and Operation Support Software (NMS/OSS) empowering businesses with real-time monitoring and data-driven insights. Built with a combination of modules, it guarantees the centralized end-to-end monitoring and management of all IP connected devices, facilities, and networks, regardless of size, complexity or location.

Worldcast Systems
www.worldcastsystems.com
20 avenue Neil Armstrong
33700 Mérignac, France

XDT Pty Ltd. **SU2802**
Catapult delivers an easy to use, high-speed point-to-point data transfer application available for Windows, Mac OS X and Linux platforms. Addressing the shortcomings of common network transfer protocols such as FTP, Catapult enables you to efficiently utilize any internet and VPN connection via its built-in UDP accelerated transfer protocol.

XPERI **N3012**
Xperi is demonstrating the latest technologies for radio in automotive, on mobile devices, and on connected devices (smart speaker and TVs). Featured demonstrations include HD Radio receivers, demonstrations of DTS Connected Radio, integrations of radio apps on mobile devices/smart TVs/smart speakers and the latest in automation software from Arctic Palm. Also: Looking for a connected device strategy for your station? We will have integrations with Alexa, Google Cast, Amazon Fire TV Stick, Android TV, Android OS and iOS implementations that were developed by All In Media, an Xperi group. All In Media has developed these integrations with broadcasters around the world.

Yellowtec **N3920**
Intellimix Desktop Mixer offers uncompromising usability for production purposes within audio and video. Enjoy precise G-Touch fader technology and check out new advanced multi-language AoIP connectivity. Also: iXm Recording Microphone captures quality voice recordings on location, no matter the



surroundings. Designed for reporters, podcasters and video sync, iXm records pristine audio at the push of a button. Its LEA DSP Engine delivers leveled audio free from artifacts and pumping noises. Also: PUC2 Mic LEA USB Audio Interface — As a compact two-channel interface. PUC2 combines simple setup and clever modular design. With its integrated real-time LEA level automation technology, PUC2 Mic LEA ensures reliable high-end sound quality. Via USB it gets content creators like podcasters best-in class leveling and zero-latency

mic input signal. Also: m!ka Mounting System — Designed for seamless integration, m!ka provides an elegant and easy way to individually arrange gear. Available from 2019, m!ka Sets facilitate the combination of multiple m!ka elements. As a comfortable package option, they deliver all the items that are needed to affix the included m!ka elements. Also: Intellimix two desktop mixer designed for ease of use, efficient use of space, a multitude of audio features and speaks many AoIP languages. For both audio and video field production.

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Pro Audio Answers Podcasting's Call

As podcasting becomes big business, attention to audio quality increases

PRODUCTION

BY CLIVE YOUNG

When podcasting emerged in the early 2000s, the format often felt like a gawky kid brother to talk radio — a domain of programming with limited reach and even more limited appeal to mainstream listeners.

As discussed elsewhere in this issue of Radio World, those days are gone. According to Edison Research, 64 percent of Americans have heard of podcasts, 44 percent — which is to say 124 million people — have listened to at least one, and 32 percent of Americans age 25 to 54 now listen to them every month.

But an often overlooked key to podcasting success is its sound quality. For an established radio operation with an existing studio facility, this may not be an issue; but as podcasting more broadly has taken off, the pro audio marketplace has moved to address the format's needs.

"Personally, as a fan of many podcasts across several genres ... the poor sound quality of some shows bothered me," said Dan Hughley, market manager for Focusrite. "so much so that even though I liked the content of certain shows, I noticed I wasn't listening to those shows where I experienced audio issues as

often anymore, or I was only listening to them in smaller doses or when they had a guest I was especially interested in.

"This is what convinced me that more podcasters need to be concerned and educated about their audio quality production, and that excites me to address this market." Focusrite has been doing just that. Hughley cites a number of podcasts that now use Focusrite interfaces, ranging from solo efforts that use the Scarlett 2i2 to in-studio productions that use gear from the top end of the Clarett USB line.

LOW BARRIER

Part of podcasting's appeal to content creators is its relatively low barrier to entry, but that also means that many who enter the field don't come to it with an audio background.

"While there are certainly audio experts in the field of podcasting, the majority of users are looking for a way to share their hobby, talents, advice and their story with a broader audience," said Robb Blumenreder, manager of audio for video at Sennheiser.



Dan Hughley



Robb Blumenreder

"Most people don't have a high level of audio experience, so finding creative ways to bridge that knowledge gap is an important step toward getting them started. Content creation can be addictive when you hit your stride. We often see users wanting to upgrade sooner rather than later when they recognize

that their voice is part of their brand." Accordingly, Sennheiser has been bringing products like its MK 4 digital, HandMic digital, ClipMic digital and AMBEO Smart Headset to podcasters' attention.

Part of podcasting's appeal to content creators is its relatively low barrier to entry.

While podcasts often focus on storytelling, listening to new podcasts over time can inadvertently reveal another story: that of how their creators learn more about audio and find gear appropriate to their needs.

PODCAST GEAR AT WORK

What are some podcasts our readers can check out that use your gear?

AUDIO-TECHNICA

There are a number, but one readers might find enjoyable (or may be currently following) is "Working Class Audio." Host Matt Boudreau is using the BP40 on this show. — Gary Boss

FOCUSRITE

There are so many, but a few to check out include Pat Flynn's "Smart Passive Income," Amy Porterfield's "Marketing Made Easy," Julian Placino's "Pathways to Success," Daniel J. Lewis' "The Audacity to Podcast" and Lewis Howes' "School of Greatness" — Dan Hughley

RME/SYNTHAX

Jonathan from "ChooseFi.com" along with Dan Franks from Podcast Movement both use RME products. — Derek Badala

SENNHEISER

We recently partnered with Stitcher, helping to outfit their content creation studios on both coasts of the U.S., and we have also been selected as their official headphone brand. Their app is a fantastic way to experience a wide variety of curated podcast content. — Robb Blumenreder

SHURE

Marc Maron famously used the SM7B on his "WTF" podcast that spawned a television show of the same name, and it's also the primary mic for the "Joe Rogan Experience." "Serial" host Sarah Koenig uses our KSM32 condenser, as does "This American Life." — Soren Pedersen

TASCAM

In addition to the successful and educational "Tascam Talkback," there are a variety of popular podcasts being produced on Tascam gear including the WDW Tiki RoomDisney-focused podcast, the "We Be Geeks" pop culture podcast and many more. — Erik Larsen

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Derek Badala, Synthax's director of sales for the Americas, said, "The podcast community struggles with a mix-minus setup when interviewing folks via Skype. If you see the videos and links online, there are all kinds of crazy solutions offered, usually with adapters, Y cables and just bad audio practices." With those scenarios in mind, Synthax's RME brand points to the Babyface Pro interface as a solution.

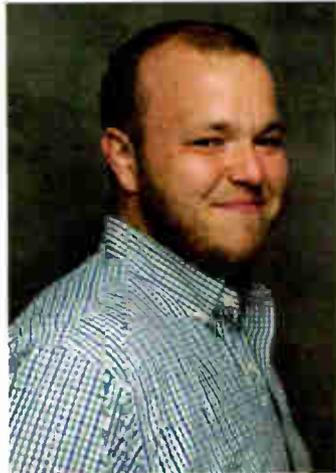


Derek Badala

LESS TECH-SAVVY

Still, parsing the pro audio world can be intimidating to new podcasters. Manufacturers including Audio-Technica have been reaching out to the community through user events at SXSW and PAX gaming culture festivals.

Audio-Technica's Gary Boss, marketing director, professional markets, noted, "We knew early on that many Audio-Technica mics were being selected as popular options for podcasting. ... While professional podcasters will use very high-end studio products, the majority of users are not as tech savvy as studio engineers. The more we can help them select the appropriate mic, the better."



Soren Pedersen

A-T now has four turnkey podcast/streamer packs with a mic, headphone and boom arm; the packs feature AT2035, AT2020, AT2020USB+ and AT2005USB microphones.

For many podcasters, the ability to record on a mobile device is a key factor, not only for portability but also for the simple fact that they already own a

smartphone or tablet that can be tasked for production. Soren Pedersen, senior product specialist at Shure, said, "We noticed that more content creators are using their mobile devices to capture content on-the-go, [and] the need for digital microphones that allow them to capture professional sounding audio — anytime, anywhere — is also increasing."

As a result, Shure introduced the MOTIV line, aimed at emerging content creators, including in the fields of podcasting and YouTube video creation. "MOTIV was a chance to provide a solution for quicker, more agile content needs on devices like mobile phones and laptops," said Pedersen.

Whether by introducing new lines of gear or demonstrating how long-time industry-standard equipment can be applied to podcasting, pro audio manufacturers are finding that the new content format ultimately sits comfortably in their wheelhouse.

As a representative for Tascam — which has seen podcasters turn to its DR-40 and DR-10X digital recorders — put it, "From a market perspective, we see no fundamental difference between podcasters and the recording musicians we have traditionally supported. In both cases, you are dealing with artists who are looking to communicate thoughts and emotion. The only real difference is that one primarily speaks, while the other plays and sings, but in the end, the technical needs are quite similar."

Clive Young is the content director of Pro Sound News, where he has worked for the last 25 years. He is the author of "Crank it Up: Live Sound Secrets of the Top Tour Engineers" and "Homemade Hollywood: Fans Behind The Camera," and is currently nominated for a 2019 Neal Award for "Best Range of Work by a Single Author."

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PRSS

(continued from page 1)

ronment installations in the Washington Network Operations Center and the Backup Network Operations Center in St. Paul, Minn.

These preparations should be completed by early summer. A period of beta testing within the system should begin at this point, with selected stations installing equipment and dual operation of the existing system and the new generation of uplink services.

Receiver manufacturer ATX will begin shipping new equipment to individual stations in October, in staggered shipments. All affiliates are expected to have new receivers in hand by the end of 2019.

WHAT TO EXPECT

Each affiliate satellite-connected station will receive two new receivers, each with four stereo audio output ports. Stations not connected by satellite will have only one unit.

These new units (Fig. 4 on page 48) will be a direct replacement for their existing equipment. An adapter will be provided to minimize wiring changes as the new equipment is installed in place of the old. The hardware process at the

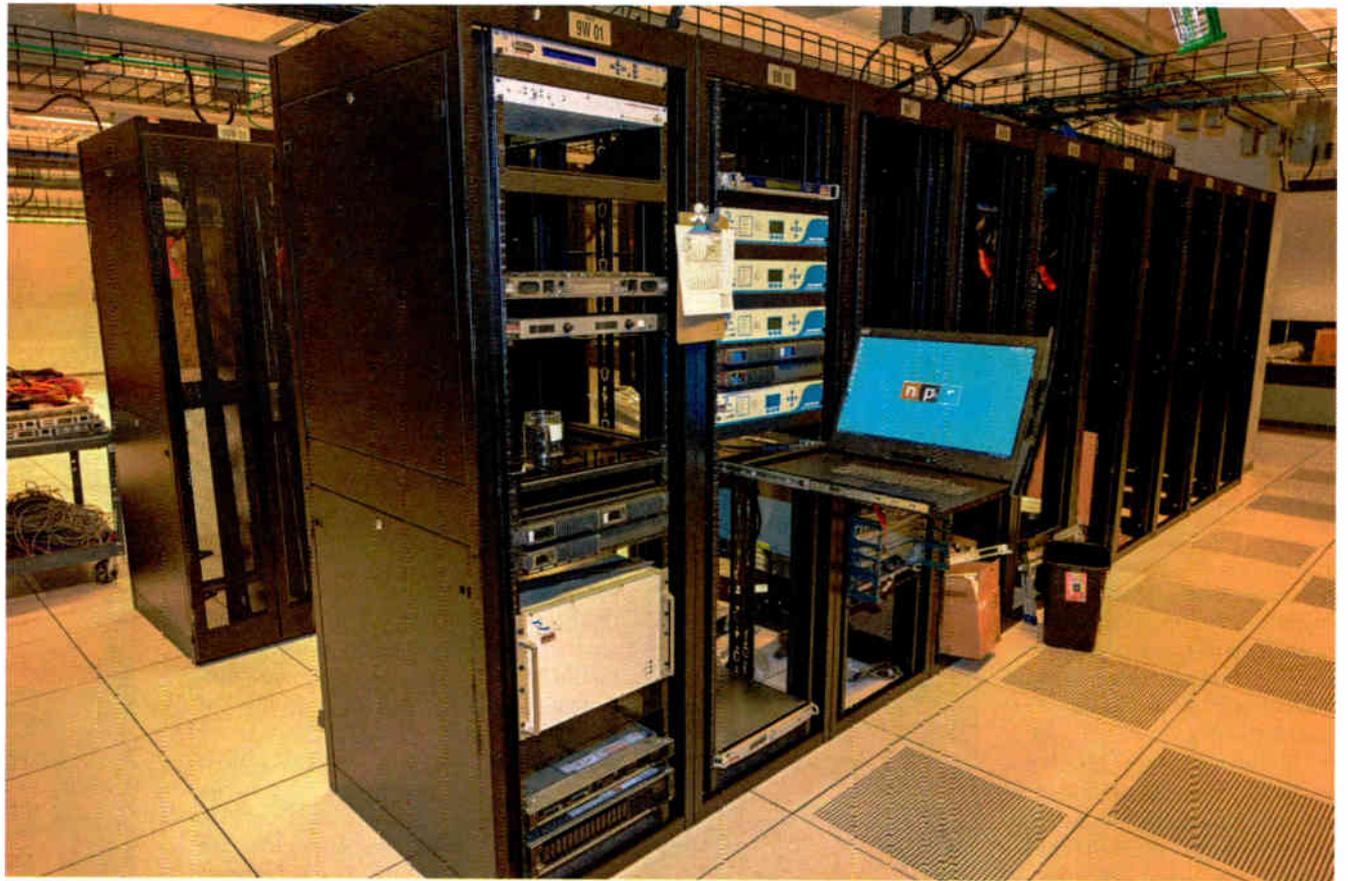
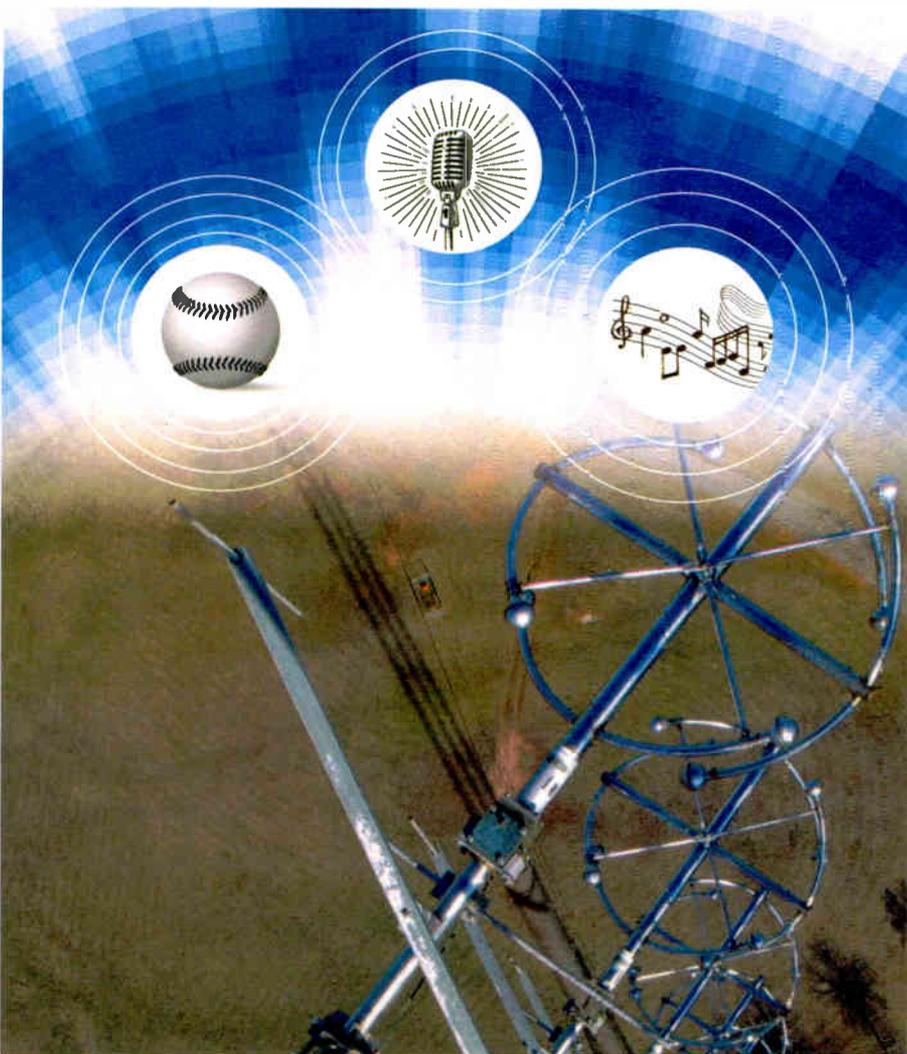


Fig. 1: Initial development environment equipment racks are shown installed. The first rack on left has, from the top, a system master clock, clock distribution amplifier, Wohler monitor amplifier, Axia selector panel, Axia AES audio node and ATX encoding equipment below.



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Fig. 2: Satellite DVB2 modulation and four ATX Pro4R receivers for testing. The rack also includes a rack-mounted KVM for system setup.

station level essentially involves pulling out the old receiver, bolting the new one in its place and plugging in the wires.

The new features and capabilities of the system will become available via the ContentDepot portal, where a new set of "broadcast services" will be introduced.

"When stations are ready to begin using the new receivers, they will need to associate the XDS ports with the broadcast services," Beach said. "To take full advantage of the new XDS features, stations will want to clean up subscription data and update delivery preferences in the ContentDepot portal."

There is good news in this regard: It will not be necessary to go through the labor of re-subscribing to every desired program in a station's schedule.

"We have upgraded the ContentDepot portal to enable 'Broadcast Services' on the current IDC receivers as well as the new XDS receivers to make it easier on the stations," said Beach. The Broadcast Services will be enabled for the existing IDC receivers as well as the new ones from ATX. This will ease the period of dual-operations for affiliate stations and their engineers.

There will be some time for stations to familiarize themselves with the new options. Dual operations will continue until March 31, 2020, at least three months after everyone has received their equipment; stations are expected to have their new receivers installed by this date. Broadcast services will be released in the portal by October of this year, and PRSS will provide documentation and training in advance of receiver shipments. Final

transition to the new distribution system and the end of dual operations will occur May 31, 2020.

INSIDE THE BOX

One of the most important features in the new ATX receiver is the addition of a network port that stations can use to connect it to the public internet.

"The goal is to be a hybrid satellite/terrestrial system, and to do that, we need a broadband connection to the receiver. If you want to take advantage of the features, you need an internet connection to it," said Beach. Some kind of protective firewall will need to be installed between the receiver and its public internet connection to prevent unauthorized access to the receiver.

By connecting to the public internet, the receiver will have a backup path available to continue operation in the event there is a satellite failure, such as the twice-yearly solar alignments. During a solar alignment, the rotation of the earth is such that the desired satellite is exactly aligned with the sun as seen from the downlink dish. The high electromagnetic energy emitted from the sun overwhelms the downlink receiver with noise and causes a loss of data for up to 20 minutes. During these solar outages, receivers will detect when a program dropout occurs, and can continue to operate by substituting delivery of a scheduled satellite program with the same program delivered over the public internet.

Additionally, the internet connection can be used to monitor the health and telemetry of the receiver from the headend and/or by the individual

(continued on page 48)

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PRSS

(continued from page 47)

station user. PRSS will be able to see the RF metrics for every station in the system as a means of assisting stations with troubleshooting problems at individual downlinks.

SPECIAL DELIVERY

There are other capabilities of the distribution system that will be enabled by the advanced receivers.

“Out of the gate, the most exciting feature is that stations will be able to put their ContentDepot live and file programming on a single output port on the receiver. This will allow a station to playout directly from the receiver without having switch between systems,” said Beach. No need to download the file from the receiver to an automation playout system. Program file store, forward and playback functions will be subscribed using the ContentDepot portal.

The automation capabilities of the system may entice some stations to shift away from their local delivery systems, although this would likely only be in situations where simple automation is required.

“We envision down the road that a station may be able to retire their automation system should they elect to,” said



Fig. 3: NPR Senior Distribution Systems Architect Doug Bevington installs cable management for system racks.

Beach. “For simple applications, this could act like an automation system, but if a station is doing complex operations, they’ll want to keep their current automation system.”

One other feature long requested by public radio engineers in northern climes appears to be on the verge of becoming a reality: a local indicator alarm for when the downlink has failed due to snow accumulation in the dish.

“Yes, that is a feature that we are working on with the vendor,” said Beach. This will be a popular improvement.

TECH EXPERTS

To get the manufacturer’s perspective on the new system, I also contacted Jose Rivero, GM and chief technology and strategy officer for media broadcast at ATX Networks, a tech supplier to cable and satellite operators, enterprises and radio networks. The company says its XDS content management, distribution and monitoring products are deployed at 70 percent of U.S. radio networks as well as some of the biggest international ones; large customers include WestwoodOne, iHeartMedia, BBC, ESPN and Multivision.

According to Rivero, aspects of the new-generation system are unique to



Fig. 4: Satellite-connected stations will receive two ATX Pro4R receivers in late 2019.



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NPR and represent ground-breaking technology in the field of broadcast distribution.

“One collaboration is an enhanced receiver with the capability to store large quantities of prerecorded content and to reliably output via analog, AES3 and AES67 simultaneously,” said Rivero.

“Another is more robust and reliable live and pre-recorded audio distribution over satellite and internet, with a verification IP back channel to the PRSS NOC to track all aspects of the content playout, distribution and overall health of network. Also, the new XDS enhanced programming management and playout scheduling interface will be tightly integrated with ContentDepot, making it is easier for the stations to manage their programming.

“Some of these features and functions will be integrated into the commercially available product offered to all radio networks sometime in the future.”

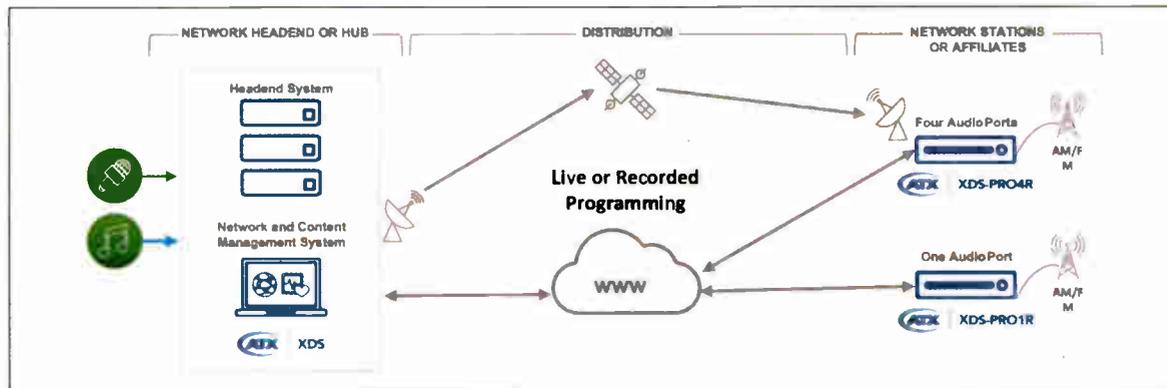


Fig. 5: Project block diagram.

Michael LeClair, CPBE, is manager of broadcast systems for WBUR Boston University and former tech editor of Radio World Engineering Extra.

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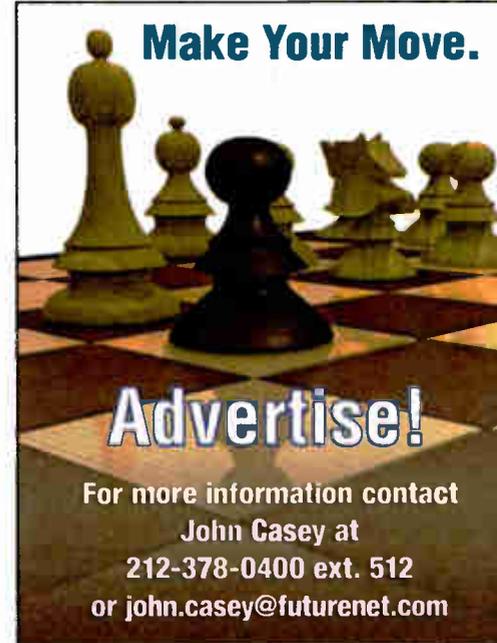
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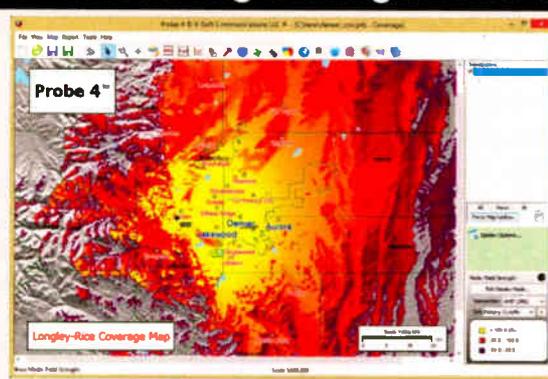


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I'm looking for KFRC radio special of Elvis Presley which

aired on January 8, 1978. I'd be willing to pay for a digital copy. Ron, 925-284-5428.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example news-cast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KZIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

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Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

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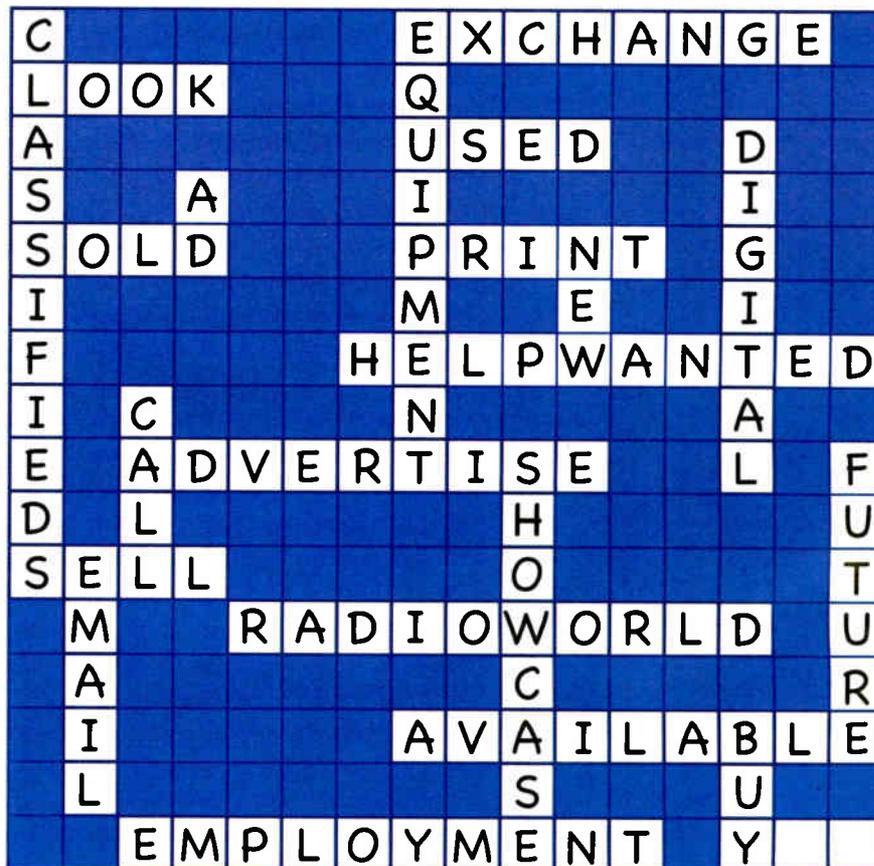
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What's on the Docket for NABA in 2019?

Brush up on the association's agenda before the next Future of Radio and Audio Symposium

COMMENTARY

BY MICHAEL McEWEN

The author is director-general of NABA.

It has been a busy time for the North American Broadcasters Association, with our Radio Committee focusing on two major projects for 2019; our Technical Committee responding to comments regarding C Band and 5G; and our Legal Committee's progress on the WIPO Broadcasting Treaty, on top of a full agenda of other issues and initiatives.

VALUE PROPOSITION OF RADIO IN A CONNECTED WORLD

NABA's Next-Generation Radio Working Group, led by Michael Beach of NPR, is in the last stages of finalizing a paper on the "Value Proposition of Radio in a Connected World," which defines the value proposition of radio, its strengths and future (e.g., should radio stay as a hybrid analog/digital service or should it move towards the full digital switch). Work is wrapping up on this paper, and it will be distributed within the coming weeks and posted to the NABA website.

FUTURE OF RADIO AND AUDIO SYMPOSIUM

NABA has formed a partnership with the National Association of Broadcasters to have its next Future of Radio and Audio Symposium as a part of the Broadcast Engineering and Information Technology Conference at the Las Vegas NAB Show this year. We are excited to be part of the NAB Show, and we have lined up three sessions of great content for the attendees.

The first focuses on the "Next Generation of Radio" and will use the "Value Proposition of Radio in a Connected



World" paper as a jumping-off point. The second session focuses on "Digital Radio Around the World," the third looks at the impact of "Connected Car/Audio on Demand/Advertising and Big Data."

We have confirmed speakers from North America, Europe and Australia; it's a truly international review of radio's future, and I think you'll be most interested to hear how radio embraces its next-generation moment.

Hear how radio embraces its next-generation moment.

Register for the conference with the NAB, and we'll see you on April 7. (NABA members may receive a free pass to the three FRAS sessions).

C-BAND COMMENTS ON 5G

NABA filed comments in the FCC's NPRM on making C-Band spectrum available for 5G (spectrum that has been, up to now, dedicated for the distribution and collection of television and radio content), and then went on to submit a reply to comments made by others.

Our Spectrum Subcommittee worked on our submissions for much of last year, all coordinated by Robert Weller. NABA remains concerned that new terrestrial uses in the C-Band downlink spectrum can cause significant harm or disruption to existing satellite users and again emphasizes that the principle of no harm to the broadcasting ecosystem

(and the public that it serves) must be at the core of any rulemaking considerations concerning the allocation of spectrum that historically has been used by broadcasters for delivery and collection of content and services. This principle goes beyond technical compatibility in allotments and assignments and must include full compensation for any required changes to operations or equipment.

We have yet to hear a response to these submissions from the

FUTURE OF RADIO & AUDIO Symposium

FCC, and while our satellite partners are working hard to accommodate both potential 5G deployment and existing broadcast requirements, rigorous technical field testing and careful allocation of available spectrum will define how everyone may be accommodated.

Broadcasters have used satellite delivery in the C Band for about as long as there have been commercial satellites available for this use. So by definition it's an old technology, but it's an old technology that really works well. Our worry is that, by introducing a sharing scheme, something that has worked well for decades won't do so anymore.

While the FCC initiative focuses on the continental United States, we are already seeing spectrum regulators in Mexico and Canada moving towards similar initiatives in their countries, so a North American C-Band reallocation is not an unrealistic conclusion. And the impact may be seen in the Caribbean and South America for years to come.

WIPO BROADCASTING TREATY

The World Intellectual Property Organization continues to work on a broadcasting treaty to protect broadcast signals from piracy in the digital environment. This is an area where we have spent many years trying to realize a positive outcome. This past year saw proposals from a number of countries, including the United States this fall, which advanced the work to a point where 2019 may see significant movement towards a diplomatic conference, which could realize this goal.

The WIPO Standing Committee on

Copyright and Related Rights is where this work gets done, and NABA and the other broadcast unions have NGO status. Representatives of our Legal Committee participated in the late November meeting with our colleagues from the other broadcast unions in the World Broadcasting Unions. There is a strong sense that WIPO member countries can build on the proposals presented, and make progress towards a diplomatic conference in 2020. As a NGO, we don't have a vote, but we are there as a resource and to underline the importance of protecting our signals in the digital IP environment where we now reside. The activities this year should help pave the way to a positive outcome.

ATSC 3.0 — IMPLEMENTATION AND REPACK

For many years now, NABA has been involved with ATSC 3.0 work (including helping to define broadcast requirements for the new technology). Now that it has arrived and the beta sites of Phoenix and Dallas are up and running, along with NAB's Baltimore site, we continue to support our members both at home and internationally with demonstrations in Mexico, CITEL meetings (in Brasilia in December), briefings to the Canadian regulators and government officials, and supporting Sinclair Broadcast and ATSC in their efforts to get the new transmission standard recognized by the International Telecommunications Union.

A market rollout of a new technology is not without its challenges, not the least of which is beginning implementation at the same time as the repack of frequencies is taking place within the mandated FCC schedule as a result of the spectrum auction. There are also border consequences for Mexico and Canada, and these were shared at our Technical Committee and board meetings.

The repack is at about the halfway mark, and many suggest the heavy lifting is yet to come, with basic resources like tower crews already stretched to the limit. Our aim is, to the extent possible, to share information and solutions so that the light at the end of the tunnel is not a train.

This work will continue well into the future and we are just now getting some interesting consumer expectations for Next Generation Television. Based on work commissioned by Pearl TV, we learned at our AGM in New York a few weeks ago that consumers want smart TVs, UHD TV and immersive sound and, if they get it, they are prepared to



invest in new sets. Hardly revolutionary, but this kind of core research helps our industry tailor the implementation to consumer expectations — it's a good initiative by Pearl.

And as Sinclair and the advertising industry tell us, data applications and mobile television will be critical to future revenue opportunities and consumer expectations. So whether you are a station group or a network, this is a time for developing new ways of doing our business, including sharing spectrum and experimental initiatives. Our role in NABA is to help facilitate these ideas and provide the space for discussion, reflection and, where appropriate, action in support of and to the benefit of our industry. It is an interesting and challenging time but full of opportunity as well.

FUTURE AGENDA ITEMS

Media-over-IP and all-IP production and distribution facilities will very much define our industry over the coming years. Already we are seeing IP facilities from CBS, Telemundo, NBCUniversal, ESPN, CBC/Radio-Canada and many others, either in development or nearing completion. Specific projects like news operations or sports have dominated initial efforts but full broadcast plants like CBC/Radio-Canada in Montreal are soon to become the norm.

All of this is happening in an environment where some of the IP standards are still in development; that truly is a pioneering experience for those who are embracing an IP future. NABA has done work in the MoIP area with a task force on broadcaster requirements and a workshop in partnership with SMPTE, Video Services Forum and Alliance for IP Media. With the pace of IP clearly picking up, we think more workshops, education and sharing is needed over the next few years, particularly focusing on areas which need resolution and industry consensus. To that end, this will be a continuing brief for our technical committee.

And at the same time, IP poses further cybersecurity risks to our operations and services. As much as we've done at both the network and station level over the past years, the challenges of IP the cyber risks to new levels. Our Cybersecurity Subcommittee of specialists will guide our discussions on this subject offering potential technical and operating solutions that improve our practices and thus our security.

Workflow continues to remain at the core of our technical/operations work. We have pretty well completed common metadata specifications for file formats and put them into the relevant SMPTE standards (IMF and BXF) so they can be implemented by broadcasters in the next capital cycle; UHDTV common metadata specifications are currently being written into the SMPTE standards. This has been and continues to be a lot of work taken on by busy people, but the benefits make our operations more efficient; this more than saves the resources on a recurring basis that was spent on doing this work on a one-time basis.

The challenges of IP take cyber risks to new levels.

The last area we need to tackle is developing the common metadata specifications for advertising (formats) and we will be doing that with Ad-ID and other advertising partners in the coming months, so stay tuned.

A CONCLUDING THOUGHT

When Radio World Editor in Chief Paul McLane asked us whether we had something to contribute in this issue, my original thought was that probably everyone knows what we're doing and why we're doing it.

But on reflection, I don't think so.

Our industry, at best, is in an evolution on steroids, and at worst, a revolution in just about every broadcast technology, operational area and program genre. When I had a look at the past year and the present and future challenges, it is truly remarkable; the volume of issues and the speed of change is breathtaking. In this environment, NABA does and will continue to provide a space for frank discussion that leads to actions which respond to broadcast needs, provide solutions and strategies for the inevitable change and provide consensus representation to regulators, policy-makers and global institutions to ensure broadcast interests are at the table.

Comment on this or any story. Email radioworld@futurenet.com with "Letter to the Editor" in the subject field.

CORRECTION

In the March 13 issue, "KFOR(AM) Leads by Example in Lincoln" misidentified Scott Young's employer. Young works for the food bank, not a blood bank. Additionally, the article omitted the word "Teacher" from Future Teacher Recognition Day.

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Solving the Missing Link

We've mastered the IP studio but need to tackle more challenges to fully connect multiple locations

COMMENTARY

BY DEE MCVICKER

The author is affiliated with Wheatstone, which makes the WheatNet-IP audio network.

Something is clearly missing between the IP at your studio and the IP out in the wild.

On one end, IP is crisscrossing the globe and touching smart houses, smartphones and everything in modern life. On the other end, IP is also coursing through your studios. In its own AoIP way, it, too, is — routing audio, switching controls and making things happen.

And in between? A huge disconnect in terms of full, seamless studio operation between two or more locations.

We can talk all we want about virtual in a cloud or centralizing operations for several stations scattered across a region, but until we can connect those two worlds, none of that is going to happen. It all comes down to solving that missing link, or more accurately, several missing links.

Let's start with the IP audio networked studio as we know it. Here, you can move programming around via audio drivers and control various elements throughout using software and hardware logic controllers built into the IP audio network. You can trigger mics on or off, set their levels, and in the case of WheatNet-IP, sum, split, EQ and control audio from anywhere in the network and in all the ways that are unique and important to a broadcast operation.

CONTROL ACROSS THE DISTANCE

That kind of intelligent studio operation currently extends only so far, however. To reach across the ether, you have had to leave some of that control behind.

So while we have a multitude of effective ways to port audio across many different platforms using a number of standards and protocols — AES67, MADI and AES, for example — we haven't found an easy way to send along all the

AoIP operating logic to go with it.

Without that logic, you can't do the most basic of studio functions at a distance — like turn on a mic or press a play button from 1,000 miles away. You can't send and receive router commands, automation control or set fader

transfer high-quality programming. With demanded bandwidth in the megabits/second range (1.4 megabits every second for typical stereo music) and available bandwidth over public and private IP links typically in the kilobits/second range (96 kbps, 256

We can talk all we want about virtual in a cloud or centralizing operations for several stations scattered across a region, but until we can connect up those two worlds, none of that is going to happen.

levels across two locations. You certainly can't connect two facilities from city to city. Without being able to transfer control logic, it's impossible to switch audio locally from a regional studio on the other side of the continent or even in the next town over.

AoIP manufacturers have tried to solve this problem in various ways in the past.

One promising new solution is an AoIP appliance for the WheatNet-IP audio network that includes its ACI control interface along with two other key technologies.

SwitchBlade is the first product of its kind to combine AoIP logic control with SIP connectivity and codec bandwidth optimization for transporting both high-quality programming and the control logic critical for full studio operation between sites. With this, broadcasters can extend full, seamless studio operation across the public internet. They can remotely control a console, mic or automation system from a sister facility in the next state or from a network operation center halfway across the globe.

CODECS NEEDED

Key to bridging the literal distance between locations is being able to

to simplify that codec selection. It has two network connections: one to connect directly into the WheatNet-IP audio network and the other for connecting to a SIP server.

SIP, TOO

SIP, or session initiation protocol, is a complete messaging protocol for initiating and terminating multimedia communication sessions. When two devices are made aware of each other via SIP, they are able to talk back and forth about bandwidth, whether audio is stereo or mono, how they will communicate with each other and the type of codec to be used to encode the audio in transit.

SIP is an important protocol used in VoIP communications for establishing audio connections over IP paths. As such, it can take the pain out of getting audio paths automatically hooked up at the best possible quality. For example, with 24 simultaneous connections available, one SwitchBlade appliance at the studio can send the same program content to six different transmitter sites, each using different SIP-compatible codec brands and settings and still have 18 more in reserve. In this way, it becomes possible for broadcasters to replace two, four, six or more encoders with one box at the studio and hang onto existing codec units at transmitter sites.

At its more advanced level, SIP-based connectivity makes it possible to transport high-quality programming to or from just about anywhere — to affiliates, from stadiums, between regional studios and across the ether to a network operation center. SIP negotiates the connection as well as the method for compressing high quality streams, freeing the broadcaster to transport programming without regard to the tedious details of routing and transport mechanisms used on the other end.

In summary, to move full AoIP studio operation across the chasm to regional or network operation centers, we'll need our systems to mobilize AoIP control logic, establish high-quality audio connections and interoperate with the ubiquitous codecs found at large.

Radio World welcomes commentaries from product developers about the concepts behind their new technology introductions. Email radioworld@futurenet.com.

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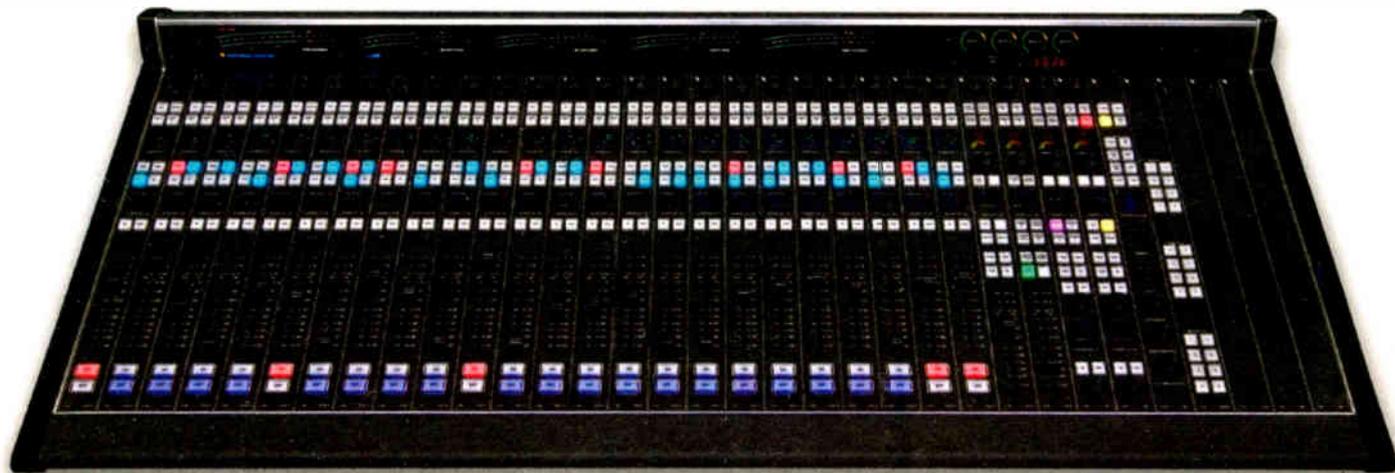
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